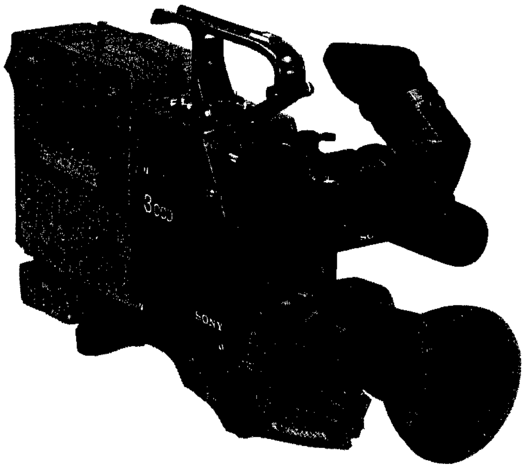
SONY

COLOR VIDEO CAMERA

BVP-50P



BETACAM™

MAINTENANCE MANUAL
1st Edition
Serial No. 10001 and Higher

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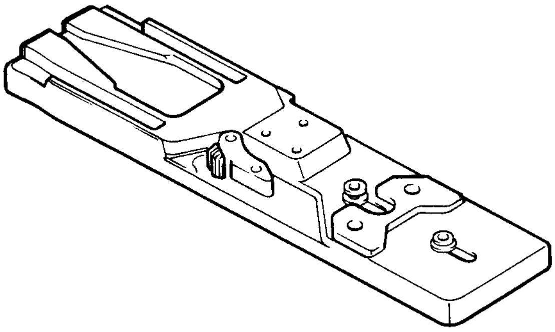
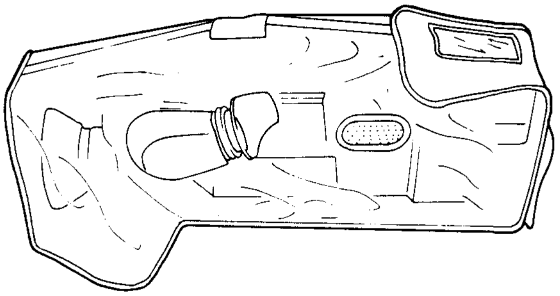
SECTION 3
SERVICE INFORMATION

3-1. ACCESSORIES SUPPLIED

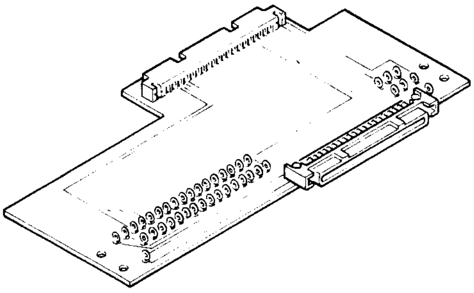
Tripod Attachment (VCT-14) x 1
This is the fixed mount for the attached camera at the tripod.



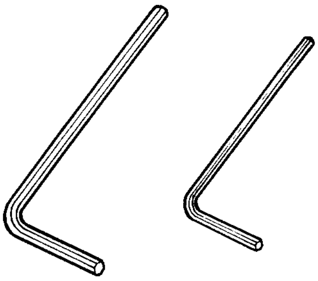
Rain-proof cover x 1



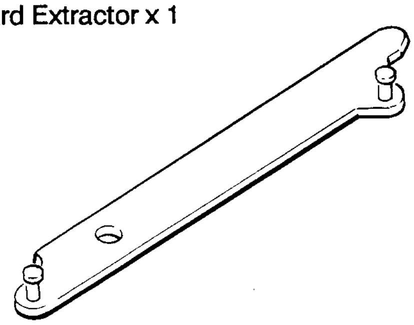
Extension board (EX-108 board) x 1



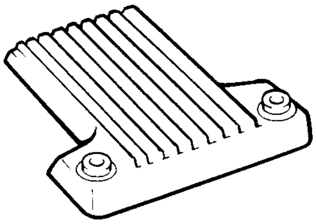
L-shaped wrench (2.5mm dia.) x 1
L-shaped wrench (3.0mm dia.) x 1



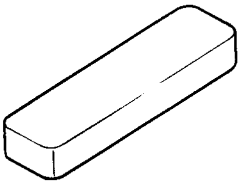
Board Extractor x 1



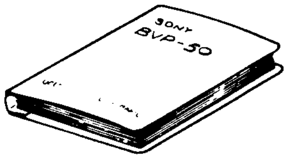
Cover for screw holes x 1



Cap for 50 pin connector x 1



Operation Manual x 1
Maintenance Manual x 1



Blind screw x 2

3-2. CONNECTORS

3-2-1. Connections

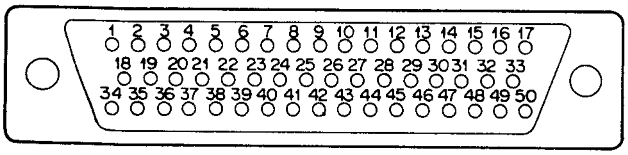
When cable with connectors are set to the respective connectors on service, the specified or equivalent connectors with cables, or the specified cable assemblies should be used, these are listed as follows.

Connector function	Parts No. and name of connector with code
TEST OUT (BNC)	1-560-069-11 PLUG, BNC
LENS (12P, FEMALE)	1-562-356-11 PLUG, 12P MALE
VF (20P,FEMALE)	1-558-609-11 CABLE SET ROUND TYPE (M)
REMOTE (6P, FEMALE)	1-560-078-00 PLUG, 6P, MALE or HIROSE HR10-7PA-6P equality

3-2-2. Connector Signals

The main connector input/output signals as follows:

50 PIN CONNECTOR

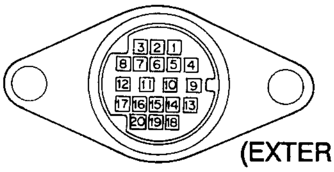

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

(EXTERNAL SIDE)

PIN No.	SIGNAL	SPECIFICATION
1	GENLOCK IN (X)	VBS SIGNAL 1 Vp-p, Zi = 1k ohm
2	GENLOCK IN (G)	
3	+8.8V OUT	+8.8V
4	-5V OUT	- 5V
5	UNREG (GND)	GND for UNREG
6	UNREG (GND)	
7	R VIDEO OUT	Zo = 75 ohm, 0.7 Vp-p
8	G VIDEO OUT	
9	B VIDEO OUT	
10	RGB (GND)	GND for R, G, B VIDEO
11	(Spare)	
12	(Spare)	
13	(Spare)	
14	SD IN/OUT	Serial data for camera control

PIN No.	SIGNAL	SPECIFICATION
15	MIC OUT (G)	Zo < 600 ohm, -60 dBm balanced
16	MIC OUT (X)	
17	MIC OUT (Y)	
18	RET VIDEO IN (X)	
19	RET VIDEO IN (G)	
20	ZEBRA/AUDIO IN	AUDIO Zi > 1 kohm
21	(Spare)	
22	TAPE IND 1 IN	ON: +4.5V, OFF: GND or OPEN
23	TAPE IND 2 IN	
24	REC ALARM IN	ON: +5V, OFF: +2.5V or 0V, Zi > 20 k ohm
25	BATT IND IN	ON: +5V, OFF: 0V or OPEN, Zi = 300 ohm
26	PB REF IN	PB: +4.5V, CAM: 0V or OPEN
27	VTR START/STOP OUT	START: +5V, STOP: 0V or OPEN, Zo < 10 k ohm
28	(Spare)	
29	R-Y VIDEO OUT (X)	Zo = 75 ohm, 0.7 Vp-p
30	R-Y VIDEO OUT (G)	
31	AUDIO CONT OUT	0V (0 dB) ~ 7V (-20 dB)
32	VTR SAVE OUT	SAVE: +4.5V, STAND BY: 0V, Zo < 10 k ohm
33	AUDIO MONITOR IN	No connection
34	SYNC (VTR) OUT	‾|_|‾ 5 Vp-p, Zo < 100 ohm
35	(Spare)	
36	SHUT CLOSE IN	No connection
37	CF OUT	Color framing
38	RET VIDEO EN OUT	ENABLE: 0V, DISABLE: +5V or OPEN
39	UNREG IN	+10.6V ~ +17V
40	UNREG IN	
41	Y VIDEO OUT (X)	Zo = 75 ohm, 1.0 Vp-p
42	Y VIDEO OUT (G)	
43	VBS OUT (X)	VBS SIGNAL 1 Vp-p, Zo = 75 ohm
44	VBS OUT (G)	
45	(Spare)	
46	(Spare)	
47	(Spare)	
48	(Spare)	
49	B-Y VIDEO OUT (X)	Zo = 75 ohm, 0.7 Vp-p
50	B-Y VIDEO OUT (G)	

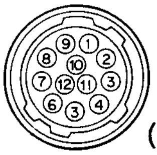
VF CONNECOTR (20P)



(EXTERNAL SIDE)

PIN No.	SIGNAL	SPECIFICATION
1	FILTER 1 OUT	ON: +5V, OFF: 0V or OPEN
2	FILTER 2 OUT	
3	FILTER 3 OUT	
4	FILTER 4 OUT	
5	GAIN UP IND OUT	ON: +5V, OFF: 0V or OPEN, -9 dB: Zo = 7 k ohm +18 dB: Zo = 1 k ohm
6	CCIR/EIA OUT	CCIR: +9V, EIA: 0V, Zo = 1 k ohm
7	AUTO IND OUT	ON: +5V, OFF: 0V or OPEN, Zo = 470 k ohm
8	TAPE IND 1 OUT	ON: 4.5V, OFF: 0V or OPEN, Zo = 330 ohm
9	TAPE IND 2 OUT	
10	MIC IN (G)	GND for MIC
11	ZEBRA/AUDITO IN/OUT	ZEBRA ON: = 0V, OFF: +5V or OPEN AUDIO Zo < 30 ohm, -15 dBS ± 1 dB
12	VF VIDEO OUT (X)	Zo < 100 ohm, 1 Vp-p
13	AUDIO CONT IN	0V (0 dB) ~ +7 V (-20 dB)
14	MIC IN (Y)	Zo < 600 ohm, -60 dBm balanced
15	MIC IN (X)	
16	BATT IND OUT	ON: +4.5V, OFF: 0V or OPEN
17	REC/TALLY OUT	ON: +9V, OFF: 0V or OPEN
18	+9.3v (VF) OUT	+9.3V
19	GND	GND
20	UNREG OUT	+10.6V ~ +17V

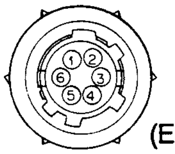
LENS CONNECTOR (12P)



(EXTERNAL SIDE)

PIN No.	SIGNAL	SPECIFICATION
1	RET VIDEO EN IN	ENABLE: 0V, DISABLE: +5V or OPEN
2	VTR START/STOP TRIG IN	TRIG ‾|_|‾ 5 Vp-p
3	GND	GND for UNREG
4	AUTO +5V OUT	AUTO: +5V, MANU: 0V or OPEN
5	IRIS CONT OUT	+3.4V (F16) ~ +6.2V (F2.8)
6	UNREG OUT	+10.6V ~ +17V
7	IRIS POS IN	+3.4V (F16) ~ +6.2V (F2.8)
8	REMOTE/LOCAL OUT	0V
9	EXTENDER ON/OFF IN	ON: 0V, OFF: +5V or OPEN
10	ZOOM POS IN	No connection
11	(SPARE)	
12	(SPARE)	

REMOTE CONNECTOR (6p)



(EXTERNAL SIDE)

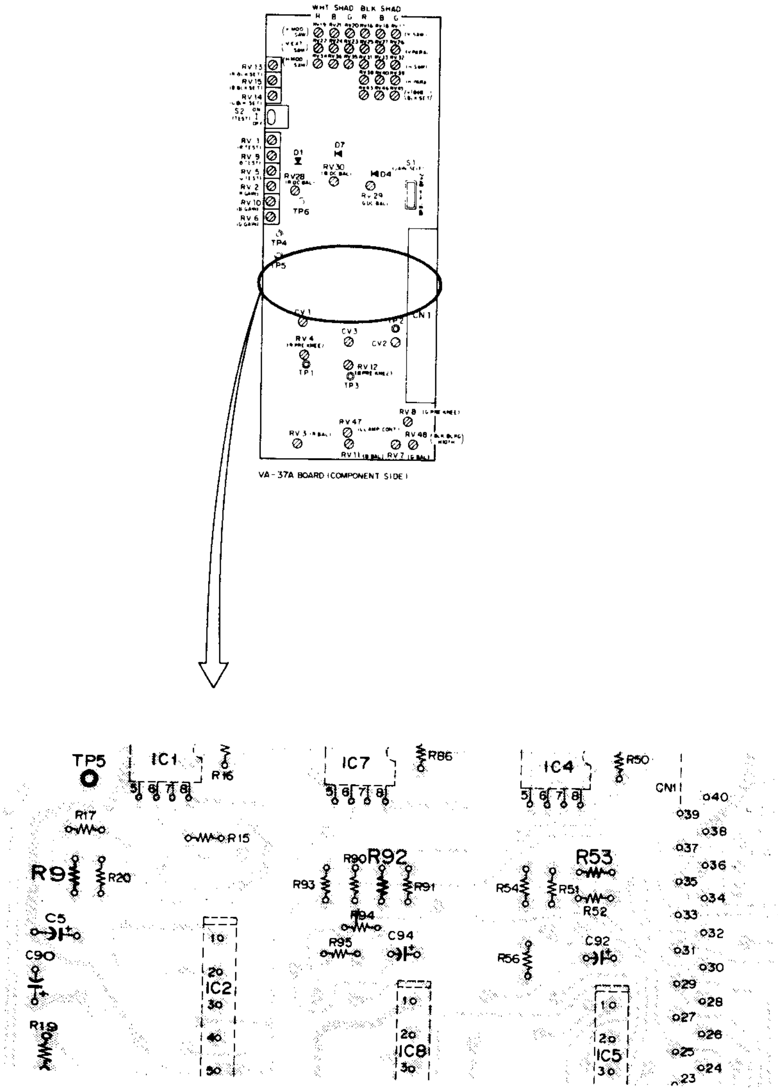
PIN No.	SIGNAL	SPECIFICATION
1	(SPARE)	
2	SERIAL DATA IN/OUT	Serial data for camera control
3	UNREG GND	GND for UNREG
4	(SPARE)	
5	(SPARE)	
6	UNREG (+) IN	+10.6 ~ +17V

3-3. GAIN CHANGES

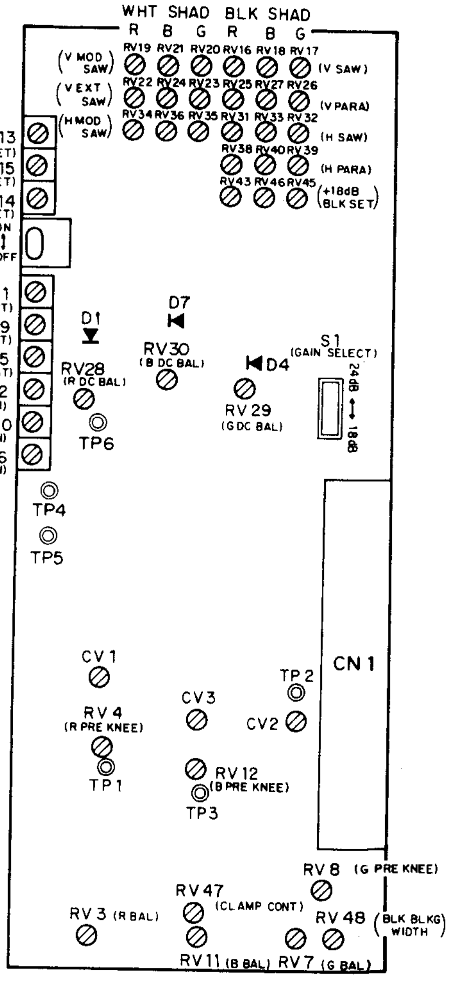
The gains of 0-9-18 dB can be selected with the GAIN selector (side panel) at the factory. But the video output level can be raised by 12 dB at the 9 position of GAIN selector and by 24 dB at the 18 position.
Therefore the gains can be set as follows.

0-9-18 dB
0-9-24 dB
0-12-18 dB
0-12-24 dB

- **Changing from 9 dB into 12 dB**
  Solder the metal film resisters of 1300 ohm (parts number: 1-214-560-00) to three locations (R9, R53, R92) on the VA-37A board as shown below.
  The video output level can be raised by 12 dB at the 9 position of GAIN selector (side panel).


VA-37A BOARD (COMPONENT SIDE)
TP5
IC1
R16
R17
R15
R9
R20
C5
C90
R19
IC2
IC7
R86
R90
R92
R93
R91
R94
R95
C94
IC8
IC4
R50
R53
R54
R51
R52
R56
C92
IC5
CN1
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23

- **Changing from 18 dB into 24 dB**
  By setting the S1 (GAIN SELECT) switch on the VA-37A board to "24 dB", the video output level can be raised by 24 dB at the 18 position of GAIN selector (side panel). When the S1 switch is changed; 18 dB --> 24 B or 24 dB --> 18 dB, be sure to perform the +18 dB Blacket Adjustment.

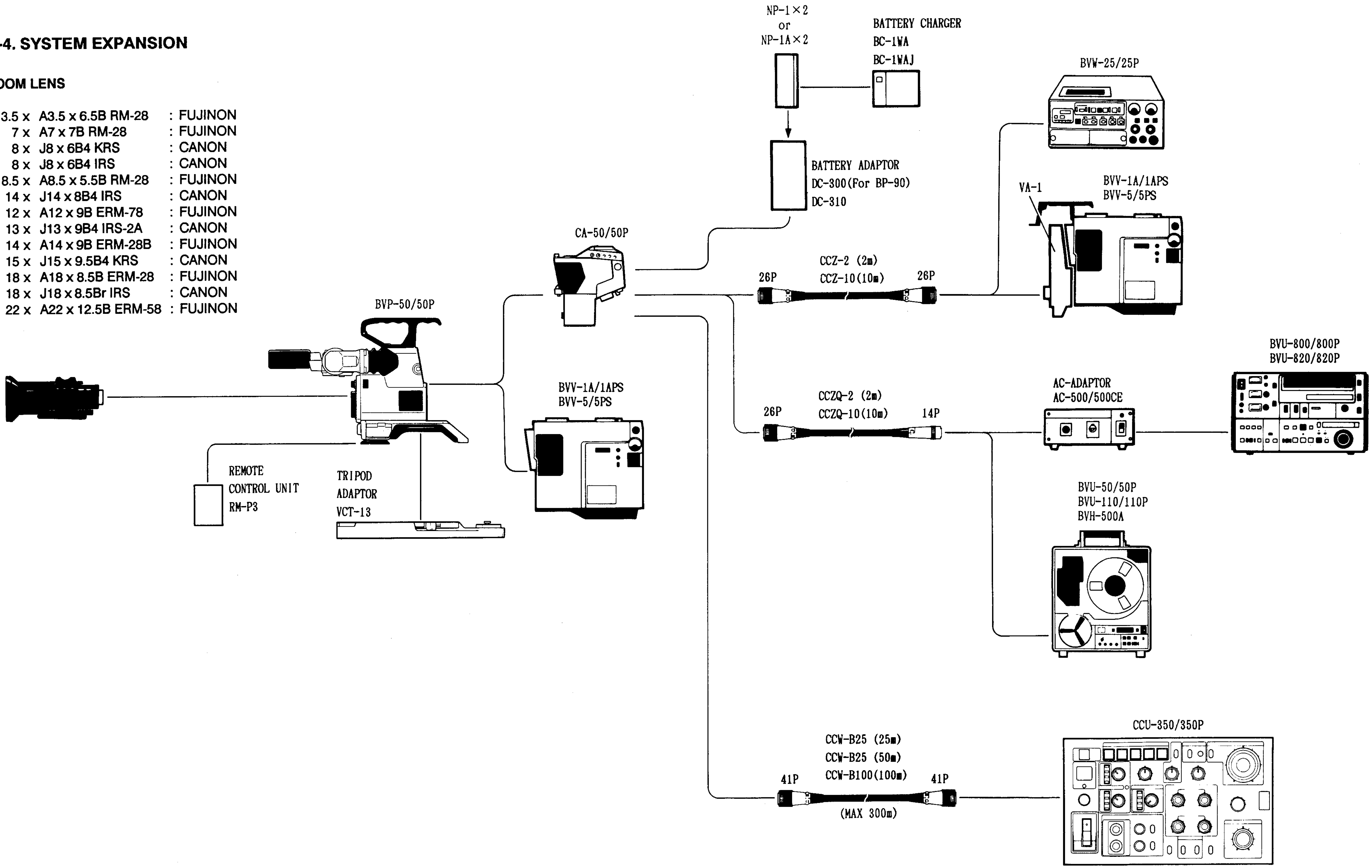

WHT SHAD BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
TP6
D4
S1 (GAIN SELECT)
24 dB ↕ 18 dB
RV 29 (G DC BAL)
TP4
TP5
CV 1
RV 4 (R PRE KNEE)
TP 1
CV 3
CV 2
TP 2
CN 1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV 11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

3-4. SYSTEM EXPANSION

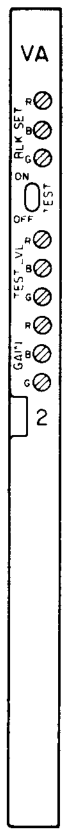
ZOOM LENS

3.5 x	A3.5 x 6.5B RM-28	: FUJINON
7 x	A7 x 7B RM-28	: FUJINON
8 x	J8 x 6B4 KRS	: CANON
8 x	J8 x 6B4 IRS	: CANON
8.5 x	A8.5 x 5.5B RM-28	: FUJINON
14 x	J14 x 8B4 IRS	: CANON
12 x	A12 x 9B ERM-78	: FUJINON
13 x	J13 x 9B4 IRS-2A	: CANON
14 x	A14 x 9B ERM-28B	: FUJINON
15 x	J15 x 9.5B4 KRS	: CANON
18 x	A18 x 8.5B ERM-28	: FUJINON
18 x	J18 x 8.5Br IRS	: CANON
22 x	A22 x 12.5B ERM-58	: FUJINON

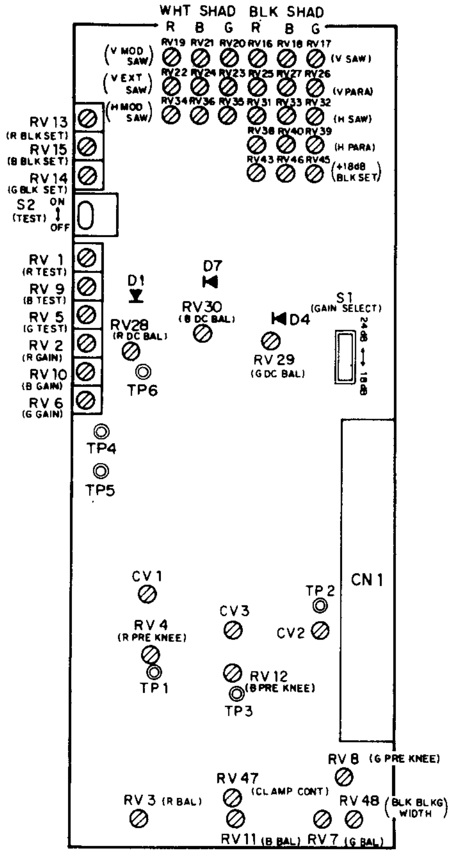

NP-1×2
or
NP-1A×2
BATTERY CHARGER
BC-1WA
BC-1WAJ
BATTERY ADAPTOR
DC-300(For BP-90)
DC-310
BVW-25/25P
VA-1
BVV-1A/1APS
BVV-5/5PS
CA-50/50P
CCZ-2 (2m)
CCZ-10(10m)
26P
26P
BVP-50/50P
BVV-1A/1APS
BVV-5/5PS
BVU-800/800P
BVU-820/820P
AC-ADAPTOR
AC-500/500CE
CCZQ-2 (2m)
CCZQ-10(10m)
26P
14P
REMOTE
CONTROL UNIT
RM-P3
TRIPOD
ADAPTOR
VCT-13
BVU-50/50P
BVU-110/110P
BVH-500A
CCU-350/350P
CCW-B25 (25m)
CCW-B25 (50m)
CCW-B100(100m)
41P
41P
(MAX 300m)

3-5. LEVEL CHECK SHEET

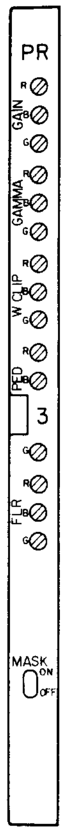
1. Adjust the iris control so that the video level at CN1-34/VA-37A board is 0.11 ± 0.01 Vp-p.
2. Adjust the ⊘ RV6 (G GAIN)/VA-37A board so that the video level at CN1-32/PR-78 board is 0.5 ± 0.01 Vp-p.
3. Adjust the ⊘ RV2 (R GAIN)/VA-37A board so that the video level at CN1-7/PR-78 board is 0.5 ± 0.01 Vp-p.
   (When the color temperature of the object is 3200°K and the WHITE BAL switch on side panel is set at PRESET.)
4. Adjust the ⊘ RV10 (B GAIN)/VA-37A board so that the video level at CN1-5/PR-78 board is 0.5 ± 0.01 Vp-p.
5. Set the S1 (TEST ON) to "ON".
   (When the color temperature of the object is 3200°K and the WHITE BAL switch on side panel is set at PRESET.)
6. Adjust the ⊘ RV5 (G TEST)/VA-37A board so that the video level at CN1-32/PR-78 board is 0.5 ± 0.01 Vp-p.
7. Adjust the ⊘ RV1 (R TEST)/VA-37A board so that the video level at CN1-7/PR-78 board is 0.5 ± 0.01 Vp-p.
8. Adjust the ⊘ RV9 (B TEST)/VA-37A board so that the video level at CN1-5/PR-78 board is 0.5 ± 0.01 Vp-p.
9. Adjust the ⊘ RV10 (G γ BAL)/PR-78 board for such a pposition that the white peak level at CN1-17/PR-78 board does not change while setting S2 (G γ ON/OFF)/PR-78 board at ON or OFF.
10. Adjust the ⊘ RV1 (R γ BAL)/PR-78 board for such a position that the white peak level at CN1-18/PR-78 board does not change whilte setting S1 (R γ ON/OFF)/PR-78 board at ON or OFF.
11. Adjust the ⊘ RV10(R γ BAL)/PR-78 board for such a position that the white peak level at CN1-16/PR-78 board does not change whilte setting S3 (R γ ON/OFF)/PR-78 board at ON or OFF.
12. Adjust the ⊘ RV18 (G GAIN)/PR-78 board so that the video level at CN1-16/EN-69/69P board is 0.7 ± 0.01 Vp-p.
13. Adjust the ⊘ RV9 (R GAIN)/PR-78 board so that the video level at CN1-17/EN-69/69P board is 0.7 ± 0.01 Vp-p.
14. Adjust the ⊘ RV28 (B GAIN)/PR-78 board so that the video level at CN1-15/EN-69/69P board is 0.7 ± 0.01 Vp-p.


VA
BLK SET
R
B
G
ON
TEST
OFF
TEST VL
GAIN
2

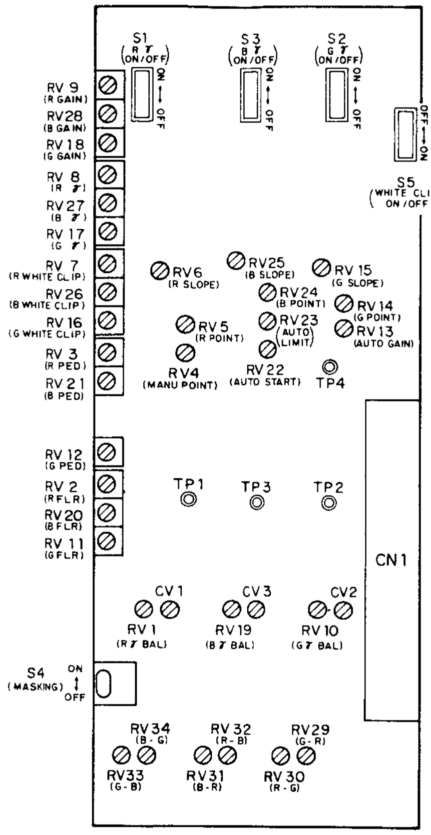
VA-37A BOARD (PANEL SIDE)


WHT SHAD BLK SHAD
R B G R B G
RV13 (R BLK SET)
RV15 (B BLK SET)
RV14 (G BLK SET)
S2 (TEST) ON OFF
RV1 (R TEST)
RV9 (B TEST)
RV5 (G TEST)
RV2 (R GAIN)
RV10 (B GAIN)
RV6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
RV29 (G DC BAL)
TP6
TP4
TP5
CV1
CV3
CV2
TP2
CN1
RV4 (R PRE KNEE)
TP1
RV12 (B PRE KNEE)
TP3
RV8 (G PRE KNEE)
RV47 (CLAMP CONT)
RV3 (R BAL)
RV48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV7 (G BAL)

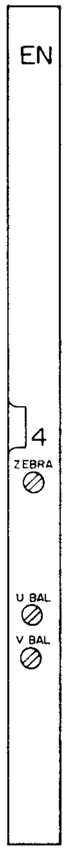
VA-37A BOARD (COMPONENT SIDE)


PR
GAIN
GAMMA
W CLIP
PED
3
FLR
MASK
ON
OFF

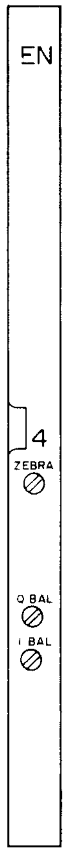
PR-78 BOARD (PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
RV9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV8 (R γ)
RV27 (B γ)
RV17 (G γ)
RV7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV3 (R PED)
RV21 (B PED)
S5 (WHITE CLIP ON/OFF)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV15 (G SLOPE)
RV24 (B POINT)
RV14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV22 (AUTO START)
TP4
RV12 (G PED)
RV2 (R FLR)
RV20 (B FLR)
RV11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV1 (R γ BAL)
RV19 (B γ BAL)
RV10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B-G)
RV32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV31 (B-R)
RV30 (R-G)

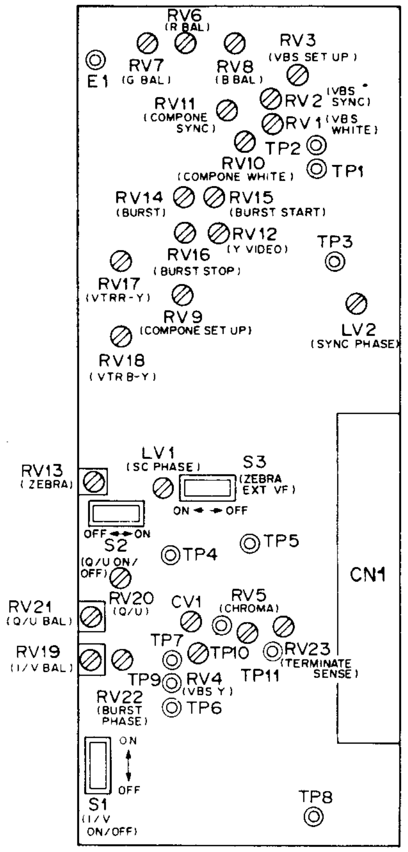
PR-78 BOARD (COMPONENT SIDE)


EN
4
ZEBRA
U BAL
V BAL

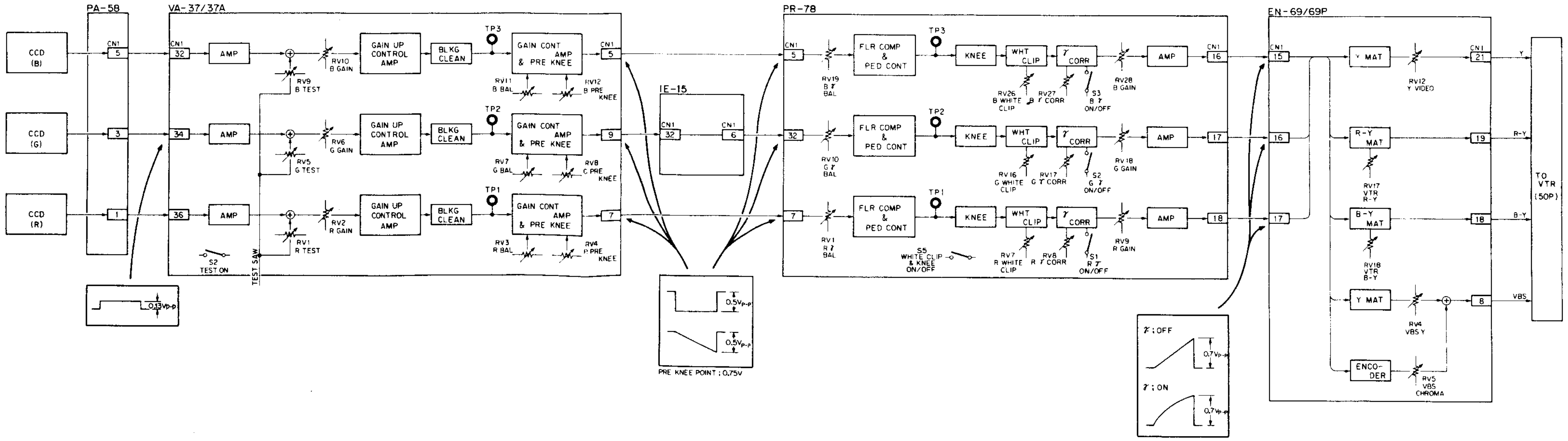
EN-69P BOARD (PANEL SIDE)


EN
4
ZEBRA
Q BAL
I BAL

EN-69 BOARD (PANEL SIDE)


RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV2 (VBS SYNC)
RV11 (COMPONE SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV16 (BURST STOP)
RV17 (VTRR-Y)
RV9 (COMPONE SET UP)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
RV13 (ZEBRA)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON OFF
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV21 (Q/U BAL)
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV19 (I/V BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD(COMPONENT SIDE)


PA-58
VA-37/37A
PR-78
EN-69/69P
IE-15
CCD (B)
CCD (G)
CCD (R)
CN1
AMP
GAIN UP CONTROL AMP
BLKG CLEAN
GAIN CONT AMP & PRE KNEE
RV10 B GAIN
RV9 B TEST
RV6 G GAIN
RV5 G TEST
RV2 R GAIN
RV1 R TEST
S2 TEST ON
TEST SAW
TP3
TP2
TP1
RV11 B BAL
RV12 B PRE KNEE
RV7 G BAL
RV8 G PRE KNEE
RV3 R BAL
RV4 R PRE KNEE
0.11Vp-p
0.5Vp-p
PRE KNEE POINT ; 0.75V
FLR COMP & PED CONT
KNEE
WHT CLIP
γ CORR
AMP
RV19 B γ BAL
RV10 G γ BAL
RV1 R γ BAL
RV26 B WHITE CLIP
RV27 B γ CORR
S3 B γ ON/OFF
RV28 B GAIN
RV16 G WHITE CLIP
RV17 G γ CORR
S2 G γ ON/OFF
RV18 G GAIN
RV7 R WHITE CLIP
RV8 R γ CORR
S1 R γ ON/OFF
RV9 R GAIN
S5 WHITE CLIP & KNEE ON/OFF
γ ; OFF
γ ; ON
0.7Vp-p
Y MAT
R-Y MAT
B-Y MAT
ENCO-DER
RV12 Y VIDEO
RV17 VTR R-Y
RV18 VTR B-Y
RV4 VBS Y
RV5 VBS CHROMA
Y
R-Y
B-Y
VBS
TO VTR (50P)

3-6. SWITCHES SETTING ON THE BOARD

[VA-37A board]

■ S1 (GAIN SELECT)

By setting the GAIN selector (side panel) to "18", the video output leel can be raised by 18 dB or 24 dB with this switch.
In this case, be sure to perform the +18 dB Black Set Adjustment for R, G and B video signals respectively.

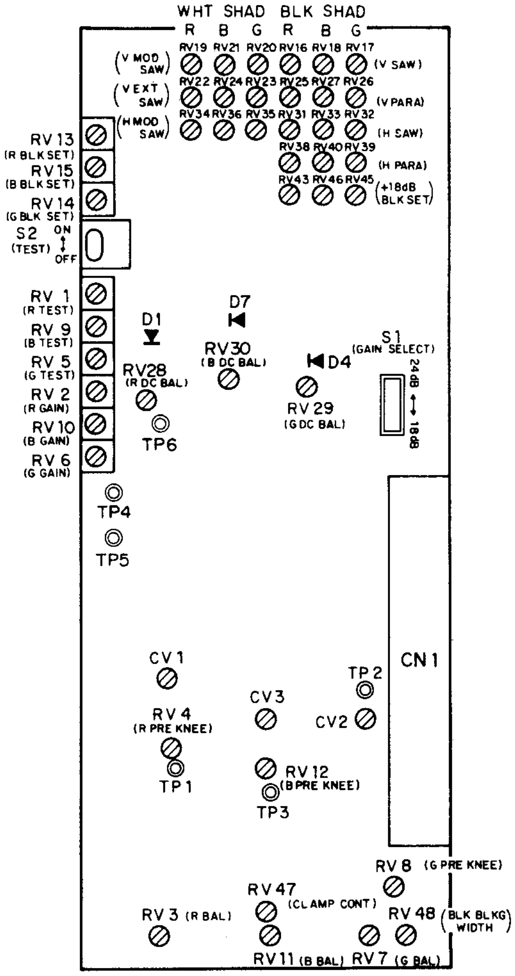
■ S2 (TEST)

When turned on, the lens is automatically closed and the TEST SAW waveform is added to the video signal system. Normally set to "OFF".

[IE-21/21P board]

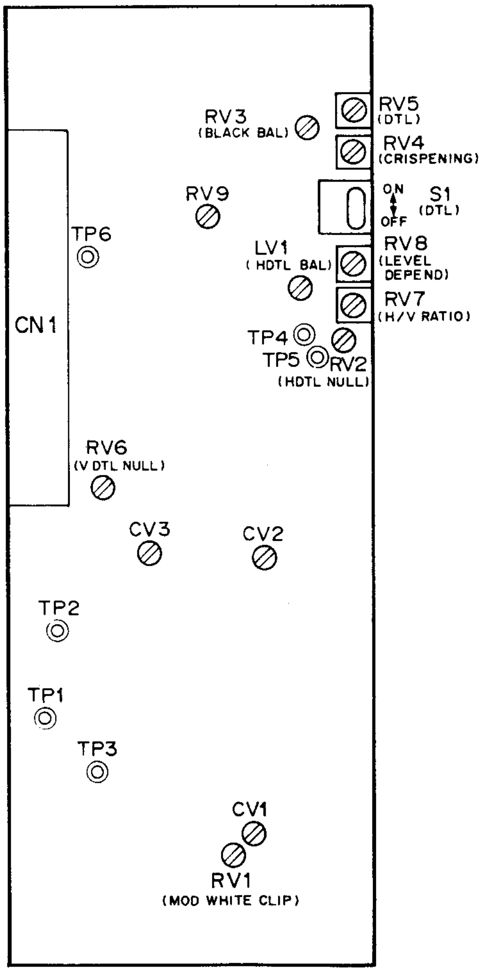
■ S1 (DTL)

Selects whether the detail signal which the IE-21/21P board has generated for resolution improvement should be added to the video signal or not.
Turn on to add the detail signal.



WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV13 (R BLK SET)
RV15 (B BLK SET)
RV14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
TP6
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB 18dB
TP4
TP5
CV1
RV 4 (R PRE KNEE)
TP1
CV3
TP2
CV2
CN1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)



RV3 (BLACK BAL)
RV5 (DTL)
RV4 (CRISPENING)
RV9
ON S1 (DTL) OFF
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)

IE-21 BOARD (COMPONENT SIDE)

[PR-78 board]

- **S1 (R r) S2 (G r) S3 (B r)**
  When turned on, the gamma correction is performed so that the overall characteristic of signals between camera and monitor is "r = 1". Normally set to "ON".

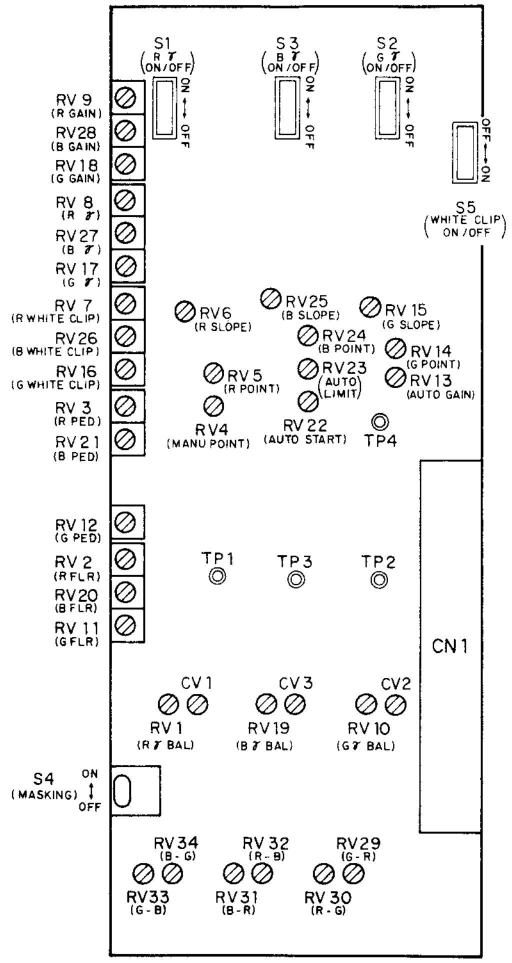
- **S4 (MASKING)**
  Selects whether the masking signal to improve the color reproducibility should be added to the video signal system or not.
  Turn on to add the masking signal.

- **S5 (WHITE CLIP & KNEE)**
  When turned off, the white clipping and knee correction are automatically released. Use for the video signal system adjustment. Normally set to "ON".

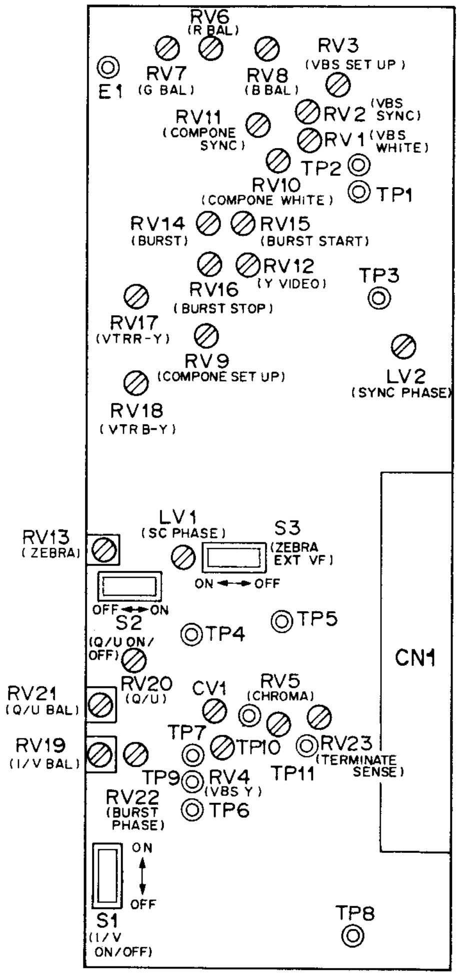
[EN-69/69P board]

- **S1 (1/V) S2 (Q/U)**
  When turned on, the I (Q) signal is added to the encoder circuit. Use for the encoder circuit adjustment. Normally set to "ON".

- **S3 (ZEBRA EXT VF)**
  When turned on, the zebra pattern is appeared on the 5-inches viewfinder screen.
  Normally set to "OFF".


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON
OFF
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV 21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV 5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN 1
CV 1
CV 3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B - G)
RV 32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

PR-78 BOARD (COMPONENT SIDE)


RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV11 (COMPONE SYNC)
RV 2 (VBS SYNC)
RV 1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV16 (BURST STOP)
RV17 (VTRR-Y)
RV9 (COMPONE SET UP)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ↔ OFF
RV13 (ZEBRA)
OFF ↔ ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV21 (Q/U BAL)
RV19 (I/V BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

[PS-163 board]

- **S1 (FIELD/FRAME)**
  Selects the ways of CCD picture readout; "FIELD" or "FRAME". It has been set to "FIELD" at the factory.

- **S2 (SPEC/GENERAL)**
  Selects the modes of the REC lamp in the Viewfinder and TALLY lamp.
  They operate ordinarily with the S2 switch set to "GENERAL". When set to "SPC", they operate as the S/B CENT lamp besides their ordinary functions.

[SG-136/136P board]

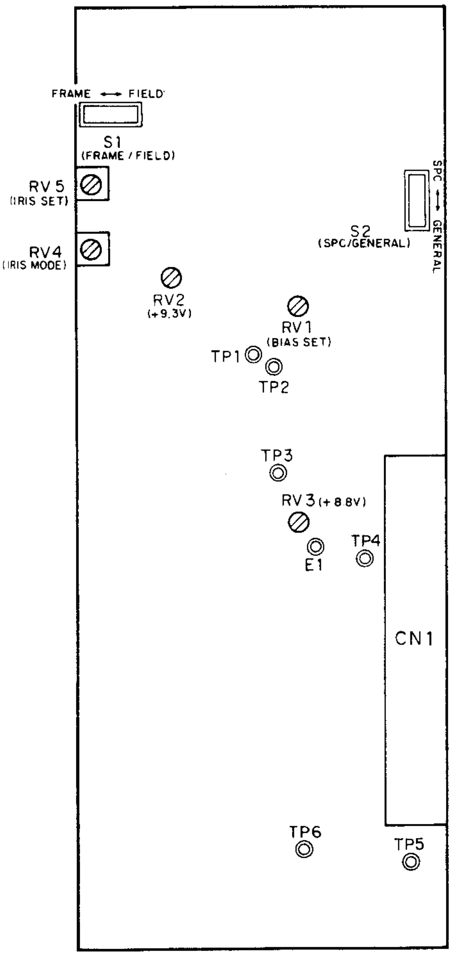
- **S1 (H BLKG SELECT)**
  Adjust the horizontal blanking width. It has been adjusted so as to be 10.9 ± 2 uS.

- **S2 (V BLKG SELECT)**
  Adjusts the vertical blanking width. It has been set to "20H(24H)".

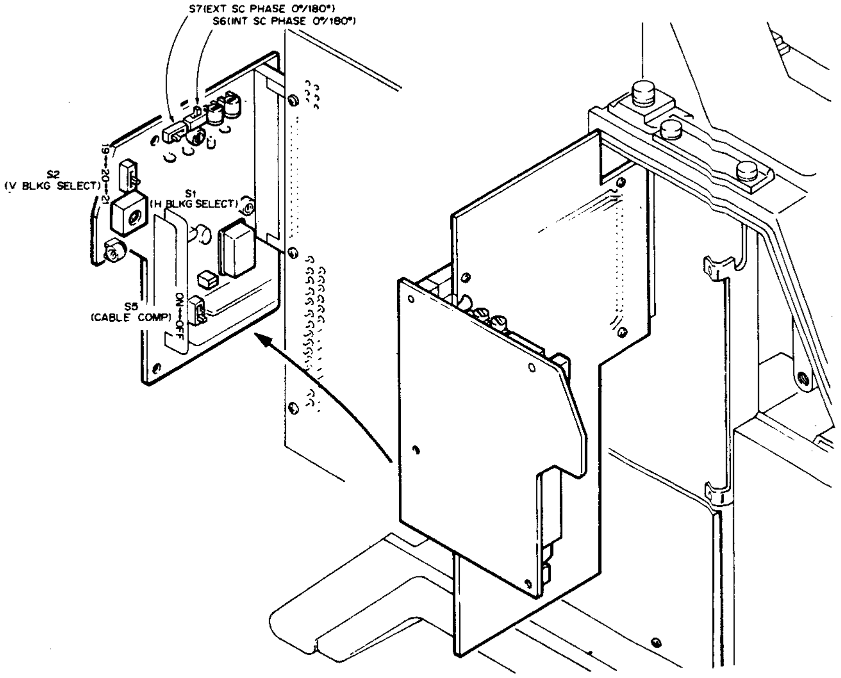
- **S4 (COLOR FRAME)**
  When turned on, the color framing pulse is fed from pin 37 of 50-pin connectors.

- **S5 (CABLE COMP)**
  When turned on, the cable length compensation is performed for the genlock signal externally supplied to camera.

- **S6 (INT SC PHASE 0°/180°)**
  S7 (EXT SC PHASE 0°/180°)
  Adjusts the SC (subcarrier) phase for the SYNC signal. Switch over to shift the subcarrier phase 180°.


FRAME ←→ FIELD
S1
(FRAME / FIELD)
RV5
(IRIS SET)
RV4
(IRIS MODE)
S2
(SPC/GENERAL)
SPC ←→ GENERAL
RV2
(+9.3V)
RV1
(BIAS SET)
TP1
TP2
TP3
RV3 (+8.8V)
E1
TP4
CN1
TP6
TP5

PS-163 BOARD (COMPONENT SIDE)


S7(EXT SC PHASE 0°/180°)
S6(INT SC PHASE 0°/180°)
S2
(V BLKG SELECT)
19
20
21
S1
(H BLKG SELECT)
S5
(CABLE COMP)
ON
OFF

[AT-52 board]

- **S1 (CHECK, EP INH)**

  CHECK

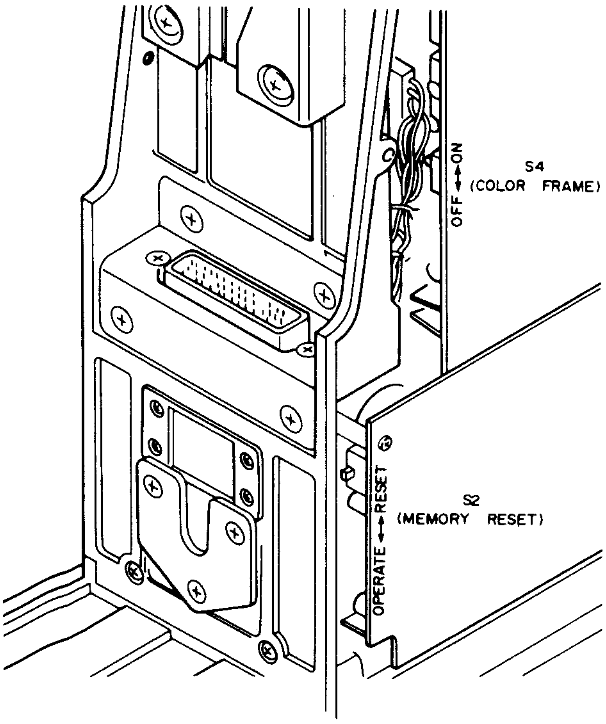
  This is not used. Set to "OFF (OPEN)" position.

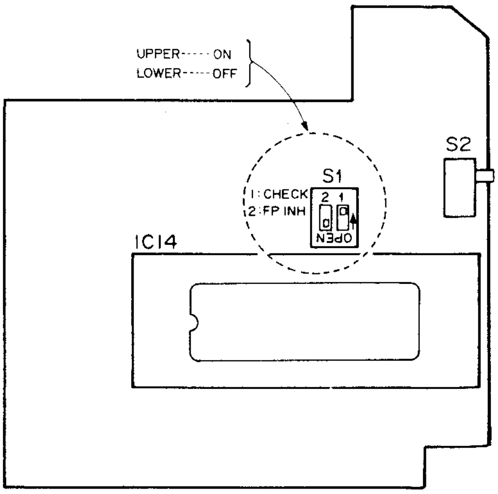
  FP INH

  When set to "OFF (OPEN)", the values of the white balance adjusted at each filter position can be sotred in the memory A and B independently. In short, up to 8 adjusted values; 4 for the memory A and 4 for the memory B can be stored. When set to "ON", only 2 adjusted values; one for A and one for B can be stored. In this case, the adjusted values will not correspond to the selection of the color temperature conversion filter. Addording to the selection of WHITE BAL switch (side panel), the white balance value is stored in the memory A and B or read out.

- **S2 (MEMORY RESET)**

  By setting the CAMERA/VTR switch (side panel) to "OFF" and this switch to "RESET", the compensation data stored in the microcomputer can be reset. Normally set to "OPERATE".


OFF ↔ ON
S4
(COLOR FRAME)
OPERATE ↔ RESET
S2
(MEMORY RESET)


UPPER----ON
LOWER----OFF
S2
S1
1: CHECK
2: FP INH
2 1
OPEN
IC14

AT-52 BOARD (COMPONENT SIDE)

3-7. CIRCUIT DESCRIPTION

* CCD CONTROL SYSTEM (TG-30/30P, DR-55, BI-14, PA-58 boards)

- **TG-30/30P board**
  It sends the pulse for driving the CCD to DR-55 board and the pulse for sampling the video signal output from the CCD to PA-58 board. Driving pulse synchronizes with the synchronizing signal sent from SG-136/136P board.
  14 MHz counted down from 28 MHz is also supplied to SG-136/136P board.

- **DR-55 board**
  It converts the driving pulse sent from TG-30/30P board so as to drive the CCD directly. Converted pulse is sent to BI-14 board and transmitted to the CCD.

- **BI-14 board**
  It mounts the CCD. Driving pulse and DC voltage for control are added to the CCD on the board.
  The video signal output from the CCD is sent through the emitter follower to PA-58 board.

- **PA-58 board**
  It eliminates the pulse component of the video signal sent from BI-14 board. THen the signal processings such as the black level fixing, phase offset adjustment for resolution improvement and amplification by preamplifier are performed on the board, then the video signal is sent to VA-37A board.

* VIDEO SIGNAL SYSTEM (VA-37A, IE-21/21P, PR-78, EN-69/69 P boards)

- **VA-37A board**
  It amplifies the video signal sent from PA-58 board and processes the black shading correction, gain-up control, blanking cleaning and white shading correction. It also selects the video signal or the TEST SAW signal.

- **IE-21/21P board**
  It generates the detail signal obtained from G and R video signal so as to improve resolution. The detail signal is sent to PR-78 board, then added to R, G and B video signals.
  G video signal is delayed by 1H, then sent to PR-78 board.

- **PR-78 board**
  The masking signal and detail signal are added to R, G and B video signals respectively and the flare compensation, pedestal control knee correction, white clipping and gamma correction are performed on the board. Then the video signal is sent to EN-69/69P board.

- **EN-69/69P**
  It generates the luminance (Y) signal, color difference (B-Y, R-Y) signals and composite video (VBS) signal obtained from R, G and B video signals. It also supplies the SMPTE: NTSC (EBU: PAL) color-bar signals.

* POWER SUPPLY SYSTEM (PS-163 BOARD)

- **PS-163 board**
  Externally supplied unregulated DC power is sent to the switching regulator, DC to DC converter and serial regulator to generate voltages of +8.8 Vdc, +5 Vdc and -5 Vdc for the respective boards.
  It also supplies voltages for the VIEWFINDER and for CCD control.
  Besides the current to cool the CCD is controlled on the board.

* SYNCHRONIZING SIGNAL SYSTEM (SG-136/136P boards)

- **SG-136/136P board**
  It generates various synchronizing signals.
  It detects the genlock signal automatically and synchronizes with it.

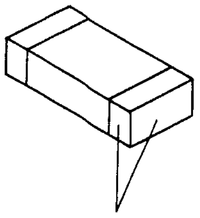
* AUTOMATIC CONTROL SYSTEM (AT-52, PS-163 boards)

AT-52 board
Microcomputer unit on AT-52 board sends to the control signal and compensation signal to appropriate boards in accordance with the selection of function switches.
It also detects the internal temperature, position of color temperature conversion filter, PEDESTAL control and video level automatically, then compensates the video signals and displays various warnings.

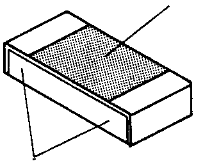
- **PS-163 board**
  If contains the auto iris circuit and VTR-CAMARA interface circuit.
  The former detects the video level at any time and adjusts the iris control.
  The latter controls the input and output of the START/STOP control signal and warning signal between camera and VTR.

3-16. REPLACEMENT OF CHIP PARTS

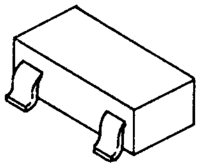
Capacitor



Resistor



Diode and transistor



Tools required:

Soldering iron of approx. 20W
(Use a temperature controler, if possible, which can control the iron temperature to 270 ± 10°C.)
Braided wire (SOLDER TAUL)
Solder (A solder of 0.6 mm in diameter is recommended.)
Tweezers

Soldering conditions:

Iron temperature of 270 ± 10°C
A connector should be soldered within 2 seconds.

Procedures

1. To remove a resistor or capacitor, place the tip of a soldering iron on chip parts to heat the parts, and then move it horizontally for removal while being desoldered. For removal of a diode or transistor, heat the one side, with two pins, of chip parts at the same time, set the parts up when desoldered, and remove the two pins. And the, remove the pin on another side.
2. Absorb solder by using a braided wire to smooth the land surface of board after removal.
3. Confirm by visual check that no pattern of the removed chip parts is peeled off and no adjacent parts is damaged or bridged.
4. Perform a thin pretinning on the pattern.
5. Place new chip parts on the pattern to solder its both sides.

The chip parts removed should not be used again.

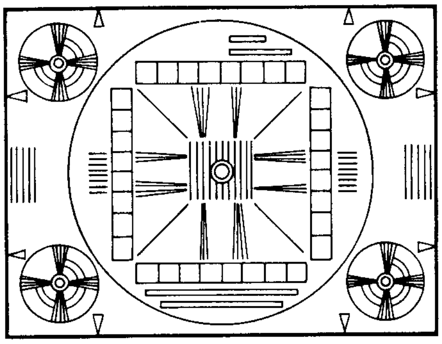
For details, refer to CHIP COMPONENTS MANUAL , Sony's parts No. 9-972-289-01 prepared by Sony Corporation.

SECTION 4
ALIGNMENT

4-1. PREPARATION

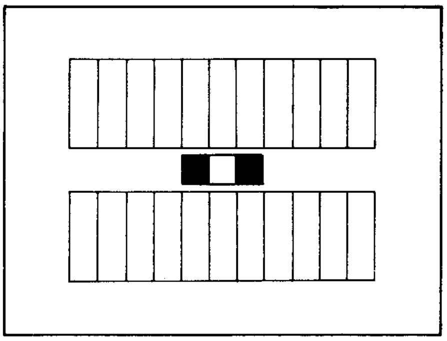
4-1-1. Adjustment Fixtures and Equipments

J-6026-100-A **Resolution Chart**



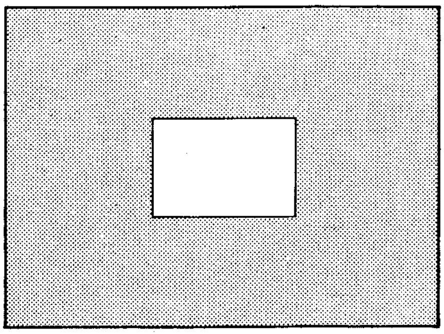
J-6026-130-A **Grayscale Chart**

Stick the velvet (black) at the both sides of white pattern in the center so as to avoid the light leakage.

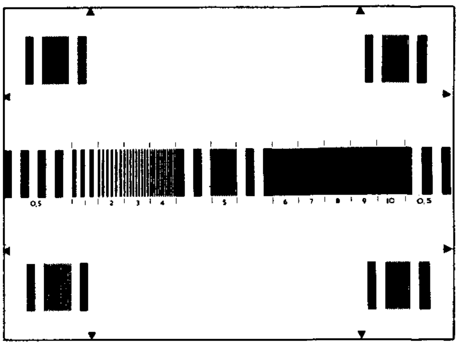


White Window Chart

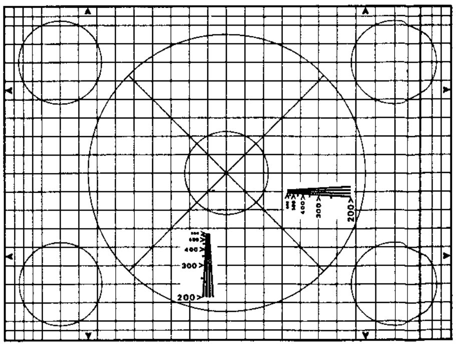
Make a hole in the center of black paper as shown in the figure.



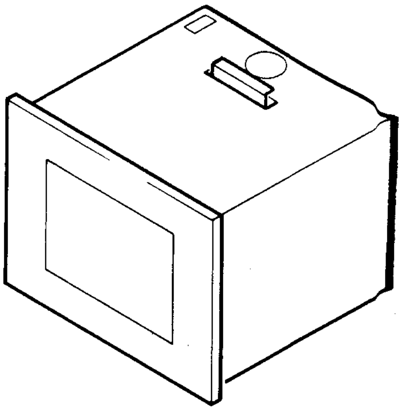
J-6026-110-A **Multiburst Chart**



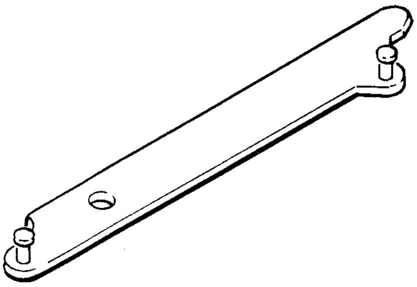
J-6026-120-A **Registration Chart**



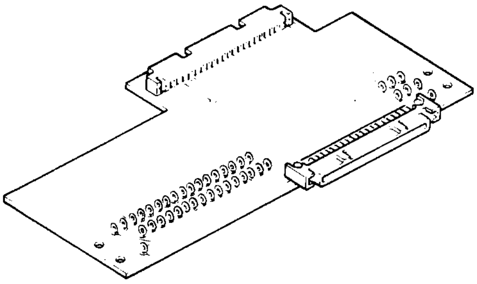
J-6029-140-A **Pattern Box PTB-500 (90 to 240 Vac) with Color-bar Chart attached**



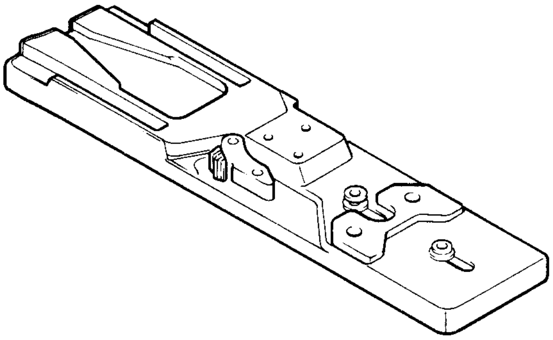
3-692-589-01	**Board Extractor**



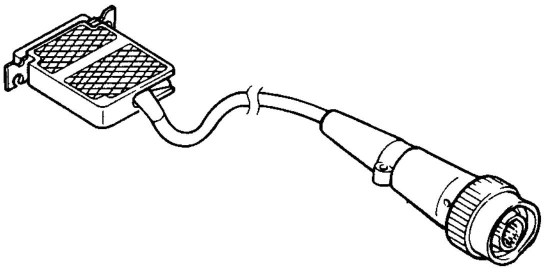
A-7520-253-A	**Extension board (EX-108)**



	Tripod Adaptor (VCT-14)



J-6196-080-B	**DC Power Cord**
Necessary without CA-50P/3AP	

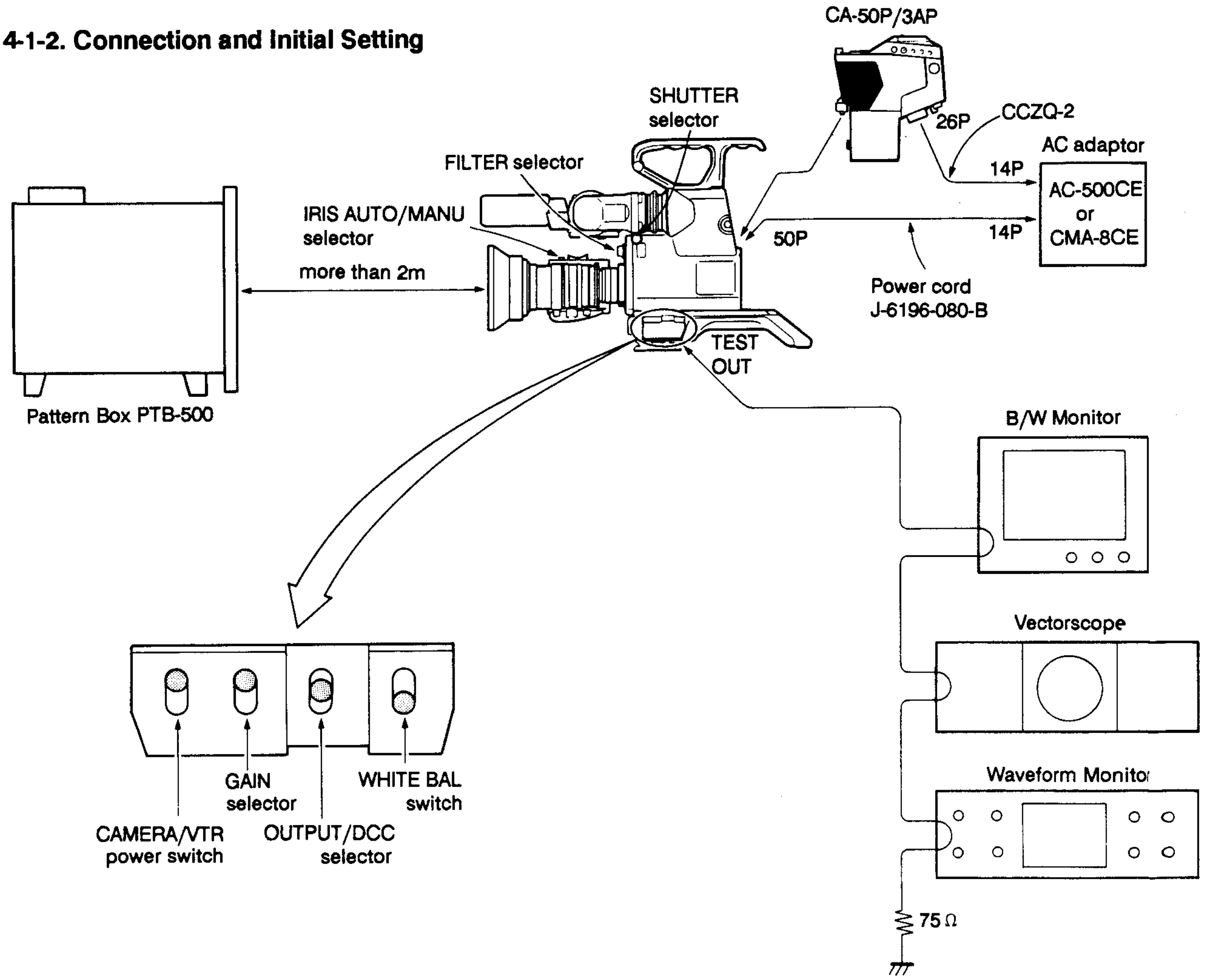


- Camera Adaptor (Sony CA-50P/3AP)
- AC Adaptor (Sony AC-500CE or CMA-8CE)
- CF Pulse Generator (Sony BVG-10P)

Measuring Instruments

- Oscillioscope
- Waveform Monitor
- Vectorscope
- Frequency Counter
- Digital Voltmeter
- B/W Monitor (H. Resolution: more than 700 TV lines)

4-1-2. Connection and Initial Setting


CA-50P/3AP
SHUTTER selector
26P
CCZQ-2
AC adaptor
FILTER selector
14P
AC-500CE or CMA-8CE
IRIS AUTO/MANU selector
50P
14P
more than 2m
Power cord J-6196-080-B
TEST OUT
Pattern Box PTB-500
B/W Monitor
Vectorscope
GAIN selector
WHITE BAL switch
Waveform Monitor
CAMERA/VTR power switch
OUTPUT/DCC selector
75 Ω

1. Before adjustments, set the CAMERA/VTR power switch to "ON/STBY" position and warm up for ten minutes.
2. Reset the compensation data in the microprocessor.
   (See 4-1-3. precautions of Adjustments)
3. Set the camera switches and controls as follows.
   [Side panel]
   CAMERA/VTR power switch : ON/STBY
   GAIN selector : 0
   OUTPUT/DCC selector : CAM/OFF
   WHITE/BAL switch : PRESET
   FILTER selector : 1 (3200°K)
   IRIS AUTO/MANU selector : MANU
   IRIS control : CLOSE
   SHUTTER switch : OFF
   [IE-21P Board]
   S1 DTL : OFF
   [PR-78 Board]
   S4 MASKING : OFF

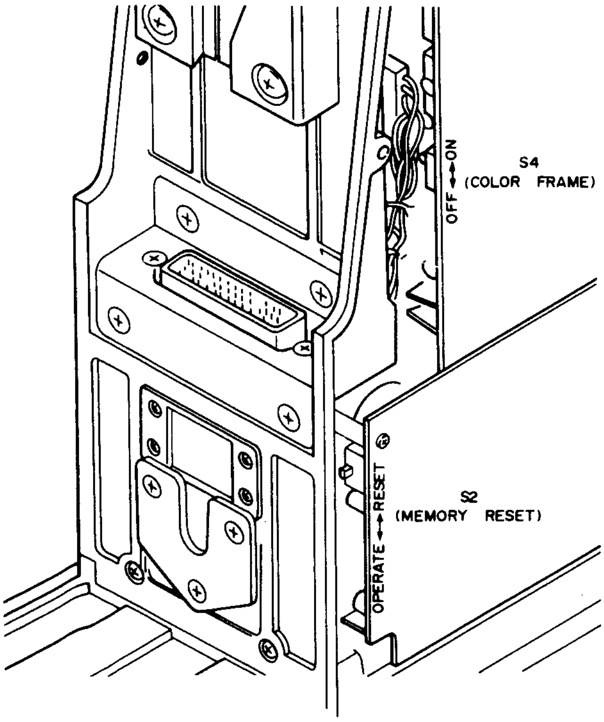
4-1-3. Precautions on Adjustments

* Boards Extension
When IE-21P, VA-37A, PR-78, EN-69P and SG-136P boards are extended or returned, be sure to set the CAMERA/VTR power switch to OFF/SAVE position. When PS-163 board is extended or returned, be sure to set the switch of original power supply to OFF position.

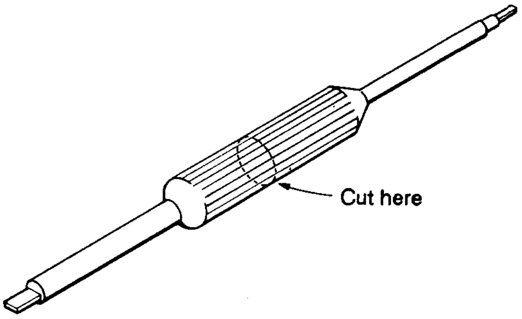
* Procedure of Resetting Compensation Data
Before step 20. Black Set·Pedestal Adjustment and step 21. Flare Adjustment are carried out, the compensation data in the microprocessor must be reset in following order.

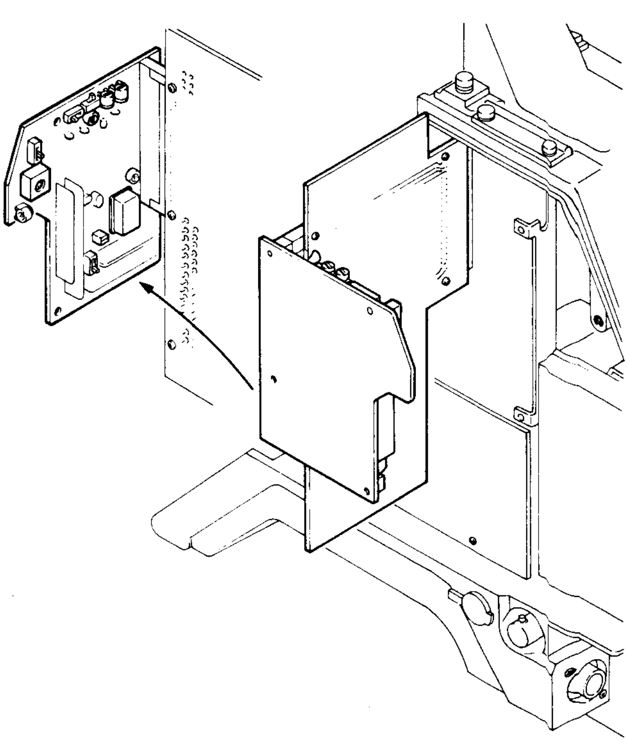
1. S2 (MEMORY RESET)/AT-52 board --> RESET
2. CAMERA/VTR power switch (side panel) --> OFF/SAVE
   Keep this switch position for ten seconds.
3. CAMERA/VTR power switch (side panel) --> ON/STBY
4. S2 (MEMORY RESET)/AT-52 board --> OPERATE

When the AUTO W/B BAL switch is not set to BLK or WHT position, the compensation data remains cleared (initial condition).
When the S2 (MEMORY RESET)/AT-52 board switch is set to RESET position, the compensation data is reset whenever the CAMERA/VTR power switch is set to OFF/SAVE position. Set the S2 switch to RESET position during adjustment.



* SG-136P board Adjustment
When step 4. SYNC Width Adjustment, step 7. H BLKG Adjustment and step 9. INT SC Phase Adjustment are carried out, a screw driver with short handle is available for adjustments.





* Partial Adjustment
When performing partial adjustment, refer to 4-3. PARTIAL ADJUSTMENT.

* Earthing Point
Use the GND terminal on the extension board, unless otherwise specified.

4-2. OVERALL ADJUSTMENT

Power supply system
Step 1. DC Bias Adjustment
Step 2. +9.3V/+8.8 V Adjustment

Synchronizing signal system
Step 3. Subcarrier Frequency Adjustment
Step 4. SYNC Width Adjustment
Step 5. SYNC Phase Adjustment
Step 6. Burst Flag Adjustment
Step 7. H BLKG Width Adjustment
Step 8. V BLKG Width Adjustment
Step 9. INT SC Phase Adjustment

Video signal system
Step 10. H BLKG Balance Adjustment
Step 11. DC Balance Adjustment
Step 12. VA Gain Adjustment
Step 13. Test Signal Waveform Adjustment
Step 14. Pre Knee Adjustment
Step 15. Modulator Balance Adjustment
Step 16. Gamma Balance Adjustment
Step 17. Carrier Balance Adjustment
Step 18. Black Shading Adjustment
Step 19. White Shading Adjustment
Step 20. Black Set·Pedestal Adjustment
Step 21. Flare Adjustment
Step 22. PR OUT Gain Adjustment
Step 23. RGB Video Level Adjustment
Step 24. EN Y Level Adjustment
Step 25. Gamma Correction Adjustment
Step 26. Manual Knee ·White Clip Adjustment
Step 27. Automatic Knee Adjustment
Step 28. Color-bar Adjustment
Step 29. UV Gain Adjustment
Step 30. Burst Adjustment
Step 31. VTR Y Adjustment
Step 32. VTR R-Y Adjustment
Step 33. VTR B-Y Adjustment
Step 34. Zebra Level Adjustment

Detail signal system
Step 35. White Clip Adjustment
Step 36. V DTL Null Adjustment
Step 37. 1H, 2H DELAY Signal Phase Adjustment
Step 38. H DTL Adjustment
Step 39. Black Balance Adjustment
Step 40. Level Dependent Adjustment
Step 41. H/V RATIO Adjustment
Step 42. Detail Level Adjustment
Step 43. Resolution Adjustment
Step 44. Power Save Adjustment

Auto control system
Step 45. Black Width Adjustment
Step 46. Clamp Control Adjustment
Step 47. Auto iris Adjustment
Step 48. LOW VIDEO Adjustment
Step 49. Character Size Adjustment

View-finder system
Step 50. Preparation for Viewfinder System Adjustment
Step 51. Vertical Hold Adjustment
Step 52. Flyback Pulse Width Adjustment
Step 53. Horizontal Hold Adjustment
Step 54. DC Balance Adjustment
Step 55. BRIGHT SET Adjustment
Step 56. Focus Adjustment
Step 57. Deflection Yoke Tilt Adjustment
Step 58. Picture Frame Adjustment
Step 59. Audio Level Adjustment
Step 60. Peaking Level Adjustment

Step 1. DC Bias Adjustment

- Note

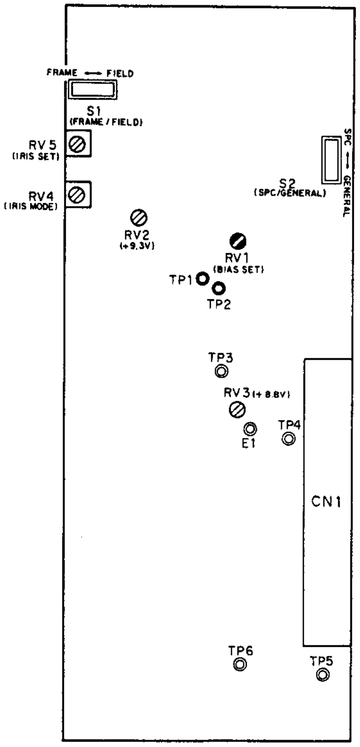
> - The adjustment is not necessary if error is within ±3% of rated voltage.
> - When performing this adjustment, be sure to readjust all of the following (to Step 60. Peaking level Adjustment).

- Setting

Equipment : Digital Voltmeter	To be extended : PS-163 board

- Adjustment procedures

Test Point : TP1 (GND:TP2)/PS-163 board
Adj.point : ● RV1 (BIAS SET)/PS-163 board
Spec. : +1.83±0.01 Vdc


FRAME ⟷ FIELD
S1 (FRAME / FIELD)
RV5 (IRIS SET)
RV4 (IRIS MODE)
RV2 (+9.3V)
RV1 (BIAS SET)
TP1
TP2
S2 (SPC/GENERAL)
SPC ⟷ GENERAL
TP3
RV3 (+8.8V)
E1
TP4
CN1
TP6
TP5

PS-163 BOARD (COMPONENT SIDE)

Step 2. +9.3V/+8.8V Adjustment

- Note

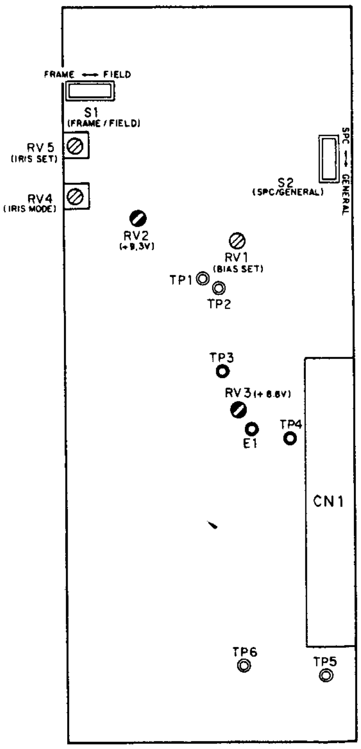
- The adjustment is not necessary if error is within ±3% of rated voltage.
- When performing this adjustment, be sure to readjust all of the following (to Step 60. Peaking Level Adjustment.

- Setting

Equipmet : Digital Voltmeter	To be extended : PS-163 board

- Adjustment procedures

	Test point/PS-163	Adj. point/PS-163	Specification
+9.3V Adjustment	TP3 (GND: E1)	⊘RV2	+9.3±0.01 Vdc
+8.8V Adjustment	TP4 (GND: E1)	⊘RV3	+8.8±0.01 Vdc


FRAME ⟷ FIELD
S1
(FRAME / FIELD)
RV5
(IRIS SET)
RV4
(IRIS MODE)
SPC ⟷ GENERAL
S2
(SPC/GENERAL)
RV2
(+9.3V)
RV1
(BIAS SET)
TP1
TP2
TP3
RV3 (+8.8V)
E1
TP4
CN1
TP6
TP5

PS-163 BOARD (COMPONENT SIDE)

Step 3. Subcarrier Frequency Adjustment

- Note

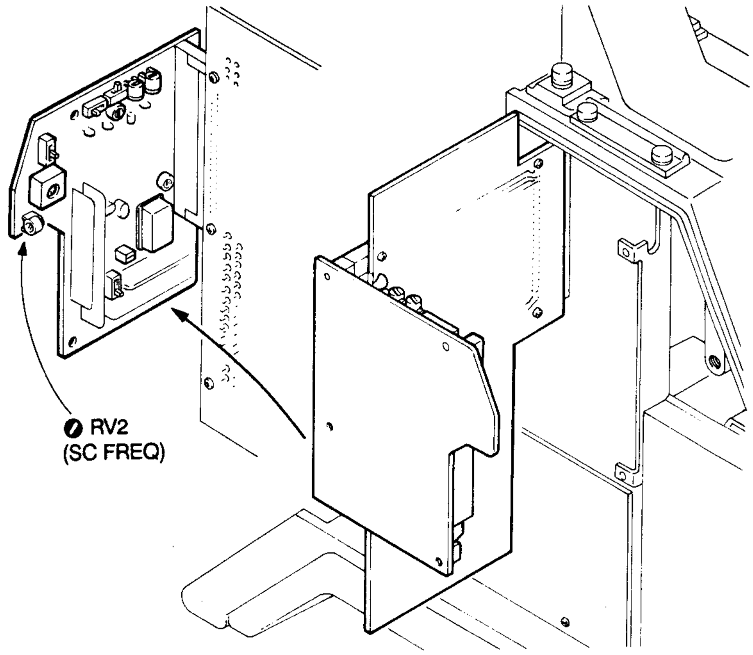
- Before adjustment, set the CAMERA/VTR power switch to ON/STBY position and warm up for ten minutes.
- Make sure that the camera is not in GENLOCK mode.

- Setting

Equipment : Frequency Counter	To be extended : SG-136P board

- Adjustment procedures

Test point : TP26 (GND:TP25)/extension board
Adj. point : ❷ RV2 (SC FREQ)/SG-136P board
Spec. : 4,433,619±5 Hz



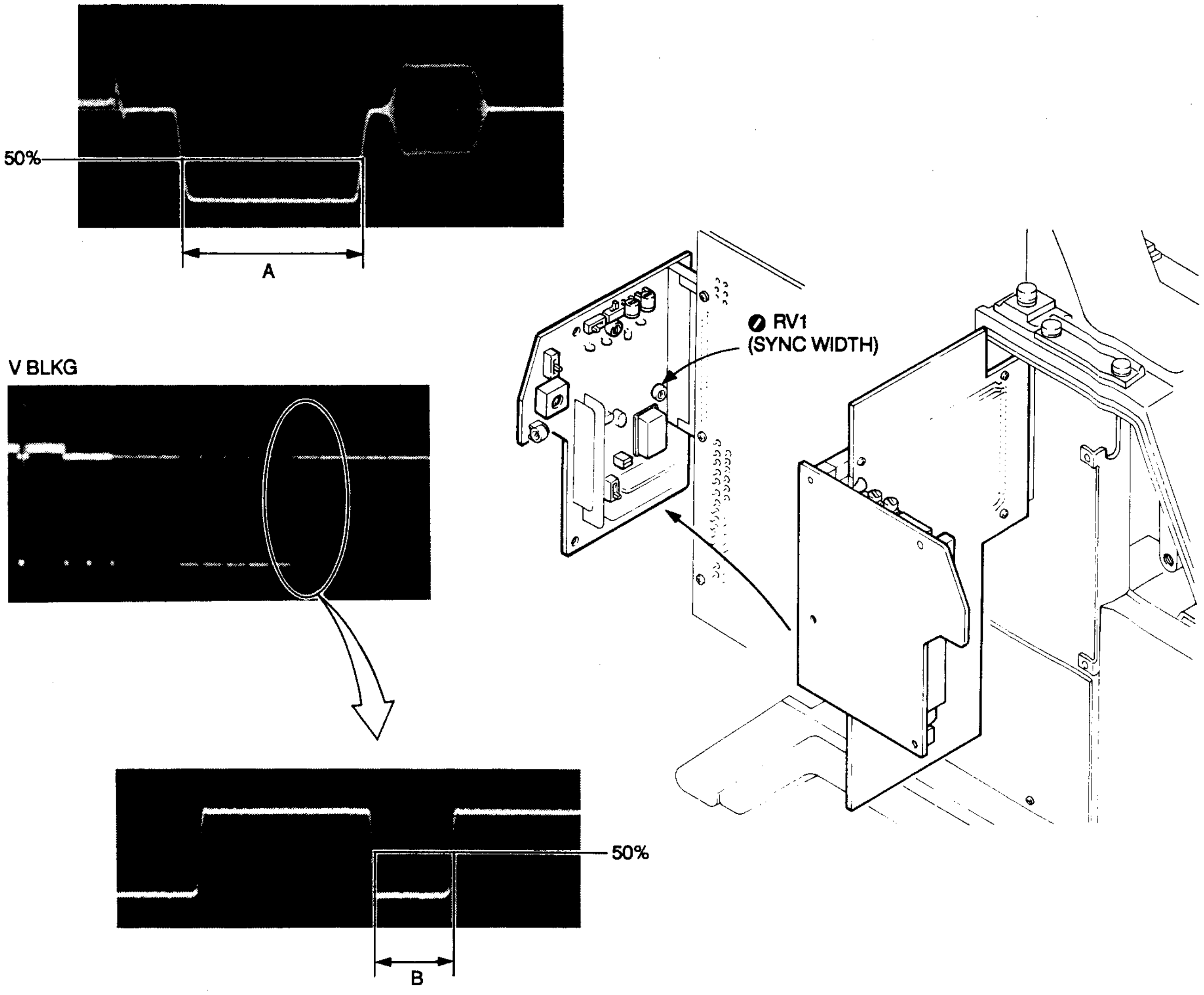
Step 4. SYNC Width Adjustment

- Setting

Equipment : Waveform monitor (WFM)	To be extended : SG-136P board

- Adjustment procedures

1. ENC/RGB switch (side panel) --> "ENC"
2. Test point: TEST OUT terminal
   Adj. point: ⊘ RV1 (SYNC WIDTH)/SG-136P board
   Spec. : A = 4.7±0.1 μs
   B = 2.3±0.1 μs



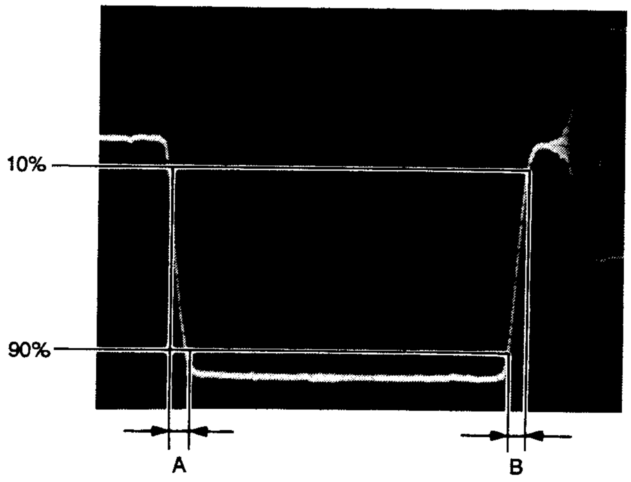
Step. 5 SYNC Phase Adjustment

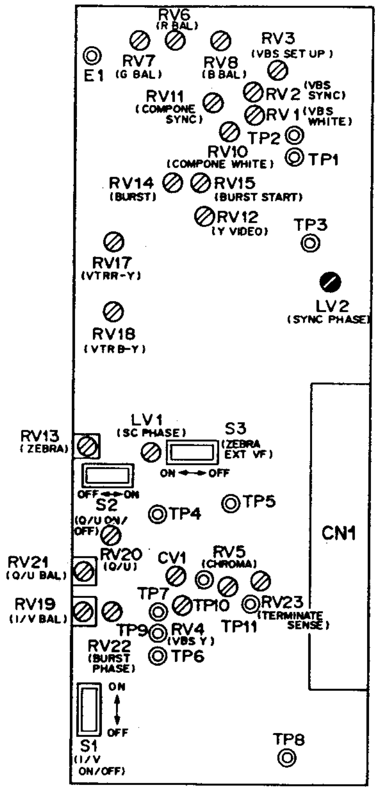
- Setting

Equipment : Oscilloscope	To be extended : EN-69P board

- Adjustment procedures

1. ENC/RGB switch (side panel) --> “ENC”
2. Test point: TP9 (GND:TP11)/extension board
   Adj. point: ● LV2 (SYNC PHASE)/EN-69P board
   Spec. : A = B = 0.25±0.05 μs
   (Adjust so as to disappear the overshoot and undershoot.)




RV6 (R BAL)
RV7 (G BAL)
RV8 (B BAL)
RV3 (VBS SET UP)
E1
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV17 (VTRR-Y)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON OFF
RV13 (ZEBRA)
OFF ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV21 (Q/U BAL)
RV19 (I/V BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

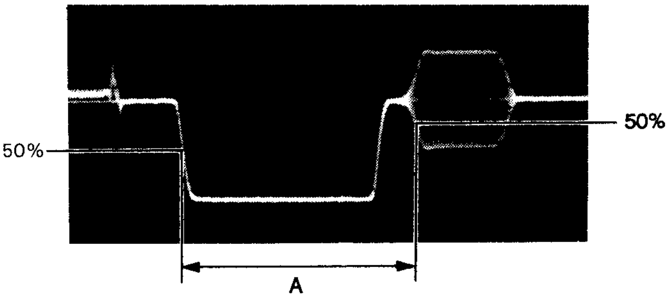
Step 6. Burst Flag Adjustment

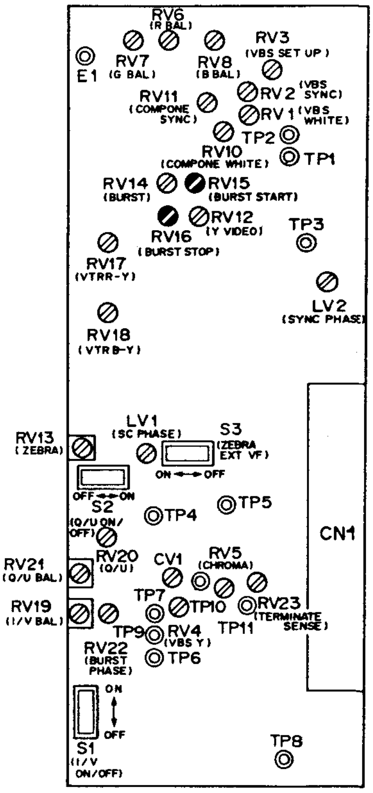
- Setting

Equipment : Waveform monitor (WFM)	To be extended : EN-69P board

- Adjustment procedures

1. ENC/RGB switch (side panel) --> "ENC"
2. Test point: TEST OUT terminal
   Adj.point : ⊘ RV15 (BURST START)/EN-69P board
   Spec. : A = 5.6±0.1μs




RV6
(R BAL)
RV3
(VBS SET UP)
E1
RV7
(G BAL)
RV8
(B BAL)
RV11
(COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10
(COMPONE WHITE)
TP1
RV14
(BURST)
RV15
(BURST START)
RV12
(Y VIDEO)
RV16
(BURST STOP)
TP3
RV17
(VTRR-Y)
LV2
(SYNC PHASE)
RV18
(VTR B-Y)
RV13
(ZEBRA)
LV1
(SC PHASE)
S3
(ZEBRA EXT VF)
ON ↔ OFF
OFF ↔ ON
S2
(Q/U ON/OFF)
TP4
TP5
CN1
RV21
(Q/U BAL)
RV20
(Q/U)
CV1
RV5
(CHROMA)
TP7
TP10
RV23
(TERMINATE SENSE)
RV19
(I/V BAL)
TP9
RV4
(VBS Y)
TP11
RV22
(BURST PHASE)
TP6
ON
OFF
S1
(I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

Step 7. H BLKG Width Adjustment

- Setting

Equipment : Waveform monitor (WFM) Object : White window chart	To be extended : SG-136P board

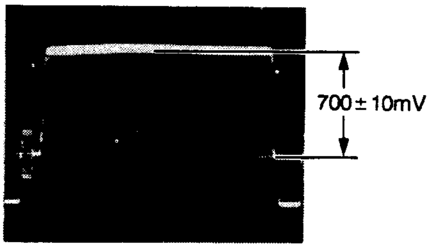
- Preparation

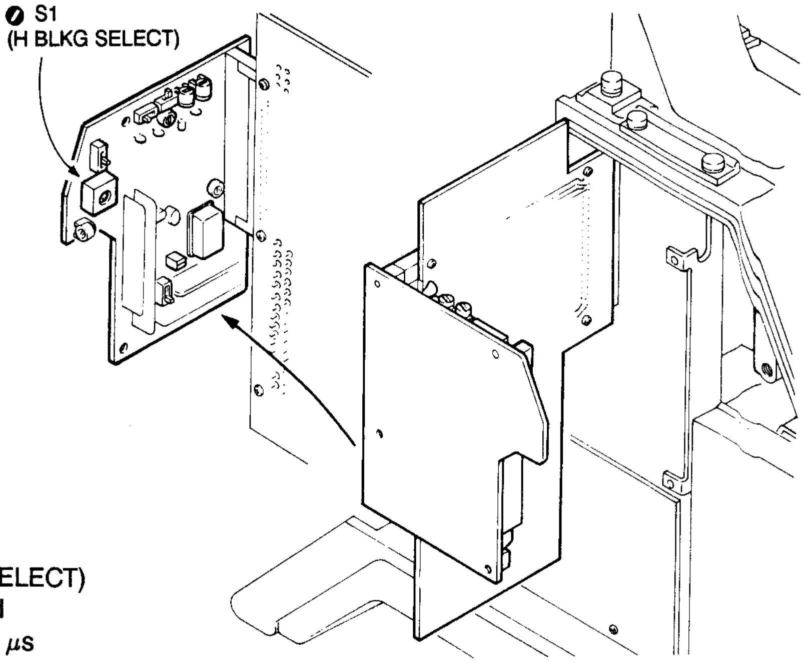
1. Pattern box
   - When the pattern box is PTB-220, set AUTO/MANU switch at "AUTO".
   - When the pattern box is PTB-500, insert the filter unit.
2. Shoot so that the white window frame touches the underscanned picture frame on the monitor.
3. ENC/RGB switch (side panel) --> "ENC"

- Adjustment procedures

Test point: TEST OUT terminal

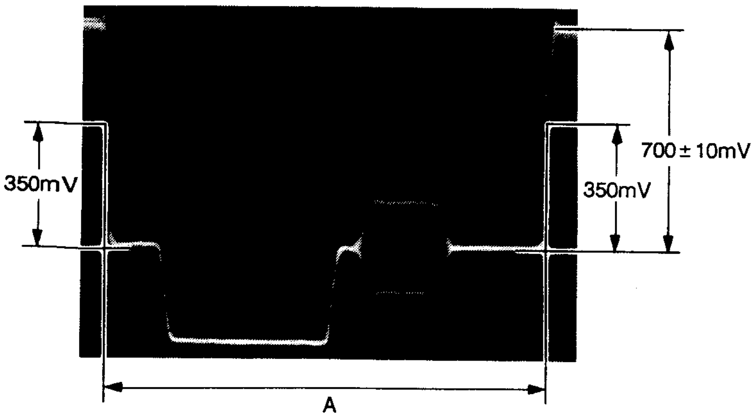
Adjust : 1. Adjust the iris control so that the video level at TEST OUT terminal is 700±10 mV.





2. Adj. point; ⊘S1 (H BLKG SELECT)
/SG-136P board

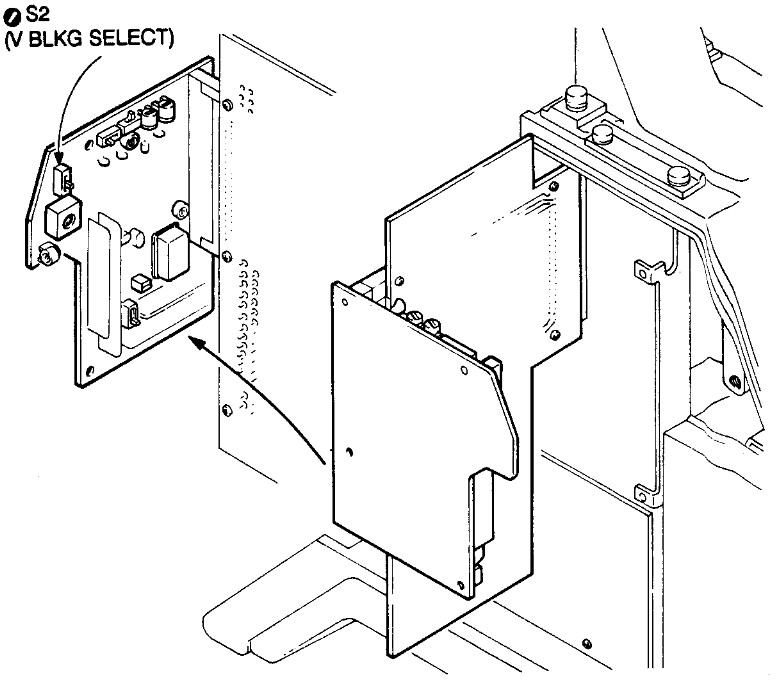
Spec. ; A = 12.05±0.25 μs



Step 8. V BLKG Width Adjustment

- Adjustment procedures

Adj. point:	S2 (V BLKG SELECT)/SG-136P board
Adjust :	The V BLKG width can be selected to 23H, 24H and 25H, respectively, by S2/SG-136P board. Usually, set to 24H (center position).



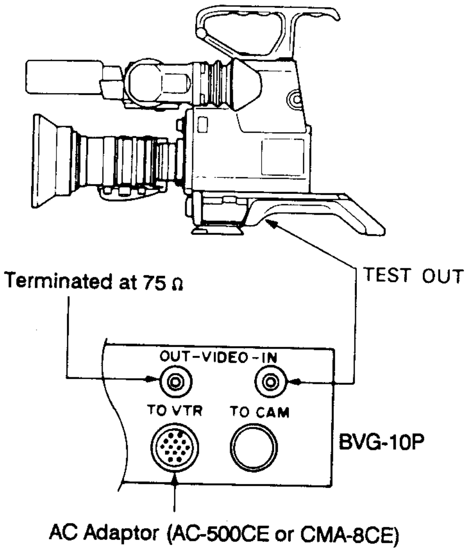
Step 9. INT SC Phase Adjustment

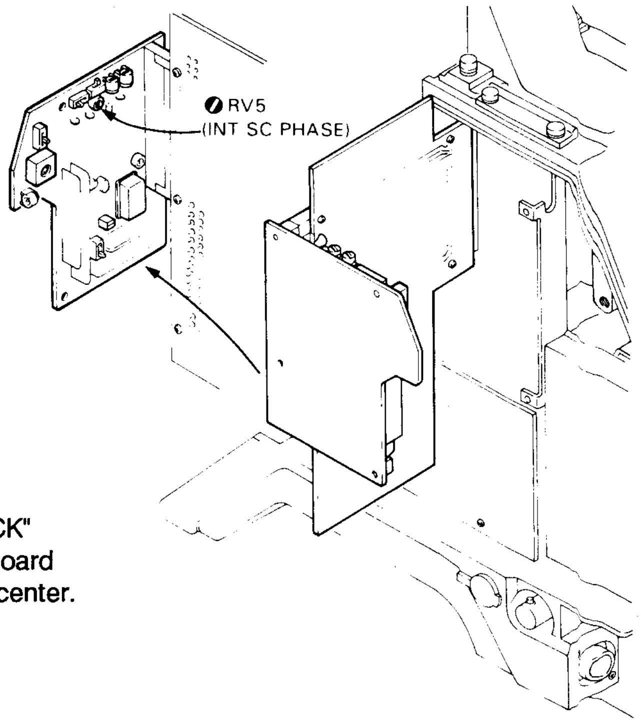
- Setting

Equipment : CF Pulse Generator	To be extended : SG-136P board

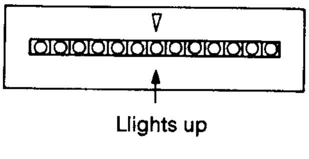
- Adjustment procedures

(This step describes how to adjust the INT SC Phase using the CF pulse generator (Sony BVG-10P).
If any equipment except BVG-10P is used, you should refer to procedures below for your information.)


Terminated at 75 Ω
TEST OUT
OUT-VIDEO-IN
TO VTR
TO CAM
BVG-10P
AC Adaptor (AC-500CE or CMA-8CE)


⊘ RV5
(INT SC PHASE)

Preparation : Selector of BVG-10P --> "SOURCE CHECK"
Adjustment : Adjust ⊘ RV5 (INT SC PHASE)/SG-136P board
so that the LED lamp of BVG-10P lights at center.


BVG-10P
Llights up

Step 10. H BLKG Balance Adjustment

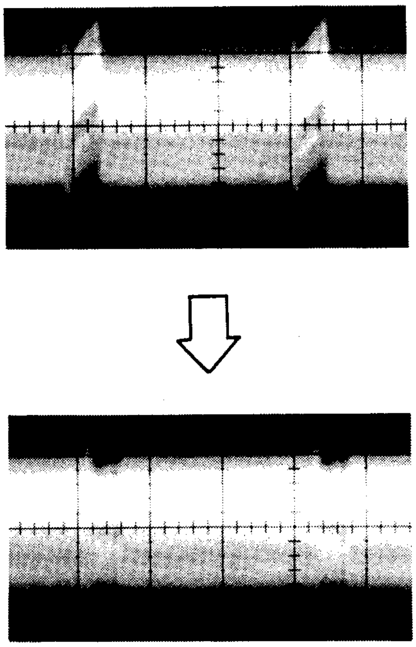
- Setting

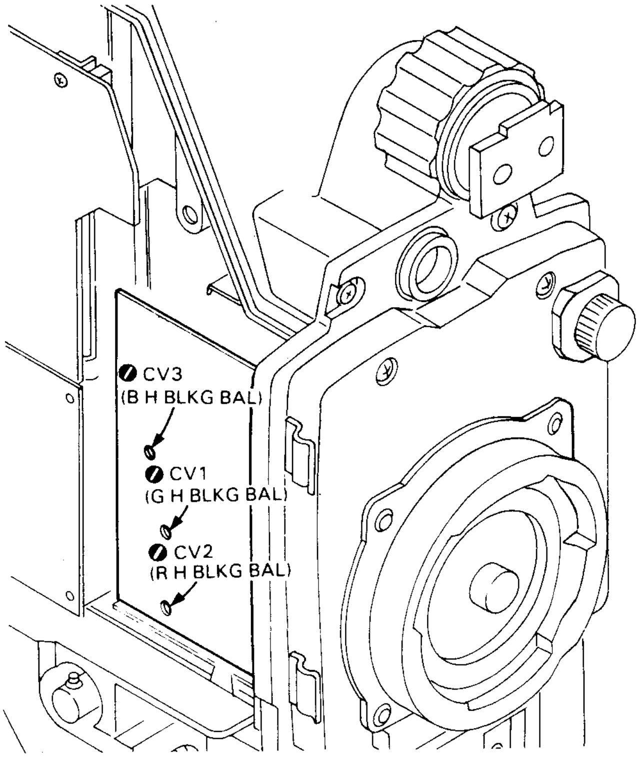
Equipment :	Oscilloscope	Lens iris :	Close "C"
To be extended :	VA-37A board	Trigger :	HD (TP25/extension board)

- Adjustment procedures

Adjust every channel as shown below.

	Test point/ extension board	Adj. point/ PA-58 board	Specification
G-ch	TP34(GND:TP33)	⊘ CV1	The waveform should be nearly flat as shown below.
B-ch	TP32(GND:TP31)	⊘ CV3	
R-ch	TP36(GND:TP35)	⊘ CV2	





Step 11. DC Balance Adjustment

- Setting

Equipment : Digital Voltmeter	To be extended : VA-37A board

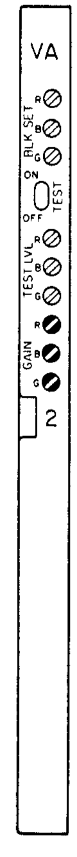
- Preparation

⊘RV6 G GAIN /VA-37A board --> Mechanical center
⊘RV2 R GAIN /VA-37A board --> Mechanical center
⊘RV10 B GAIN /VA-37A board --> Mechanical center

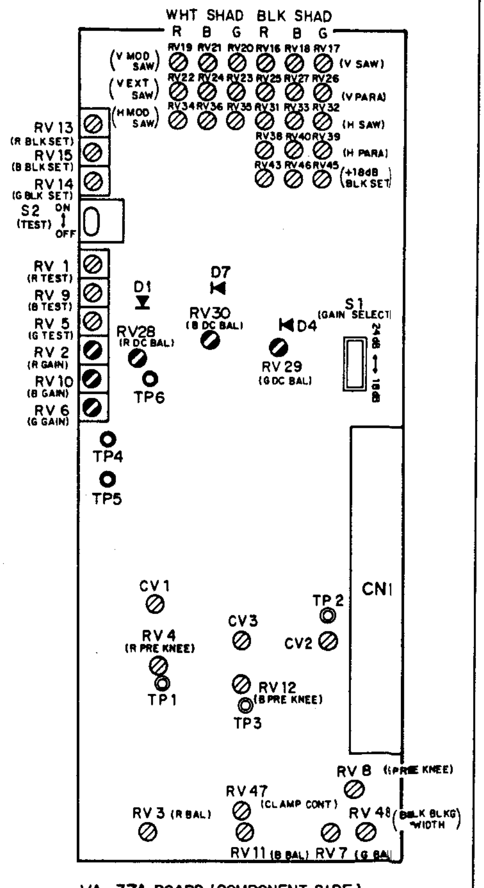
- Adjustment procedures

Adjust every chanel as shown below.

	Test point/ VA-37A board	Adj. point/ VA-37A board	Specification
G-ch	the cathode of D4 or TP5	⊘ RV29	+1.3±0.1 Vdc
B-ch	the cathode of D7 or TP6	⊘ RV30	+1.3±0.1 Vdc
R-ch	the cathode of D1 or TP4	⊘ RV28	+1.3±0.1 Vdc


VA
BLK SET
R
B
G
ON
TEST
OFF
TEST LVL
R
B
G
GAIN
R
B
G
2

VA-37A BOARD
(PANEL SIDE)


WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV28 (R DC BAL)
RV30 (B DC BAL)
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB
18dB
TP6
TP4
TP5
CV 1
RV 4 (R PRE KNEE)
TP 1
CV3
RV 12 (B PRE KNEE)
TP3
TP 2
CV2
CN1
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV 11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, be sure to carry out step 12. VA Gain Adjustment.

Step 12. VA Gain Adjustment

- Note

- Be sure to complete step 11. DC Balance Adjustment, or this adjustment will become invalid.
- Use a white pattern chart for this adjustment. Adjust the lighting so that the white area is exactly 3200°K of color temperature.
- When the pattern box is used, well maintained pattern box should be used.

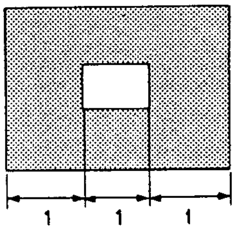
- Setting

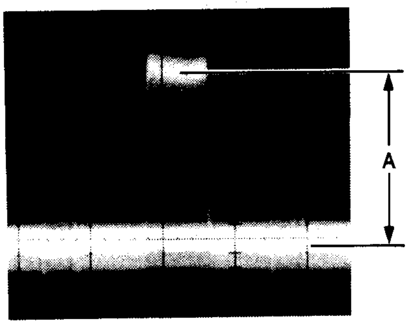
Equipment :	Oscilloscope	Trigger :	HD (TP25/extension board)
Object :	White window chart	To be extended :	VA-37A board

- Adjustment procedures

1. Adjust the zoom control and shoot the white window chart as shown right.
   GAIN switch (side panel) --> "0"
2. Test point: TP34(GND:TP33)/extension board
   Adj.point : Lens iris
   Spec. : A = 0.11±0.01 Vp-p

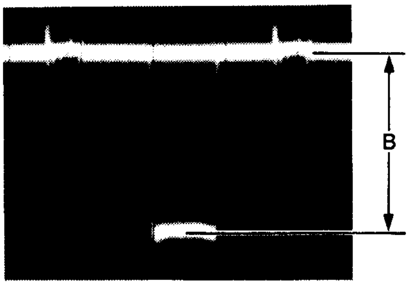
Monitor screen

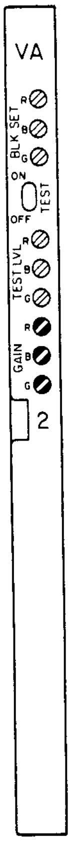




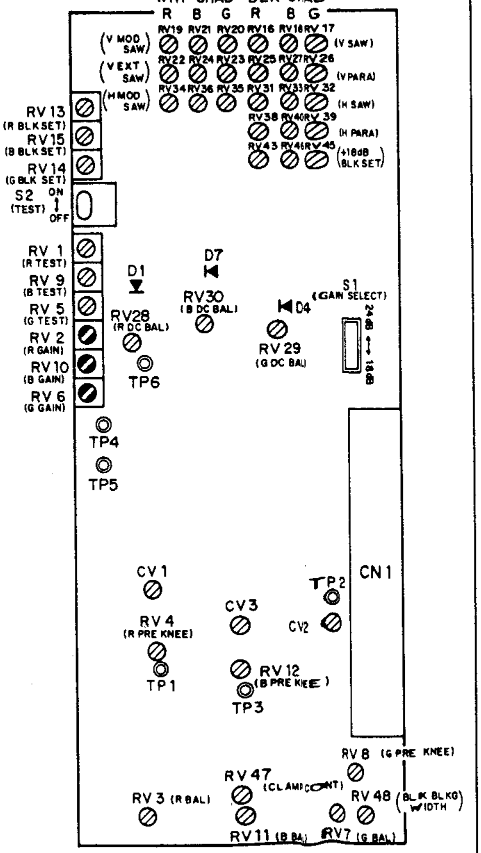
3. Adjust every channel as shown below.

	Test point/ extension board	Adj. point/ VA-37A board	Specification
G-ch	TP9	● RV6	B = 0.5±0.01 Vp-p
B-ch	TP5	● RV10	B = 0.5±0.01 Vp-p
R-ch	TP7	● RV2	B = 0.5±0.01 Vp-p




VA
BLK SET
R
B
G
ON
TEST
OFF
TEST LVL
R
B
G
GAIN
R
B
G
2

VA-37A BOARD
(PANEL SIDE)


WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV 17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV 26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV 32
(H MOD SAW)
(H SAW)
RV38 RV40 RV 39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB ↔ 18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV 1
TP2
CN 1
CV3
RV 4 (R PRE KNEE)
CV2
TP 1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV 11 (B BAL)
RV7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

Step 13. Test Signal Waveform Adjustment

- Note

Be sure to complete step 12. VA Gain Adjustment, or this adjustment will become invalid.

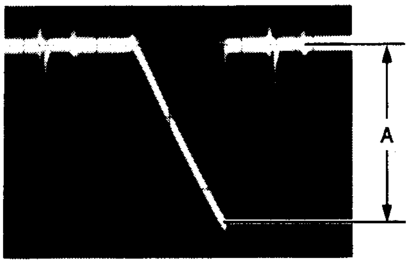
- Setting

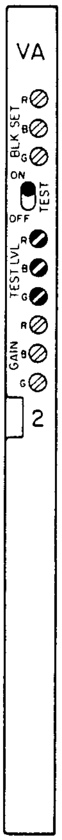
Equipment : Oscilloscope To be extended : VA-37A board	Trigger : HD (TP25/extension board)

- Adjustment procedures

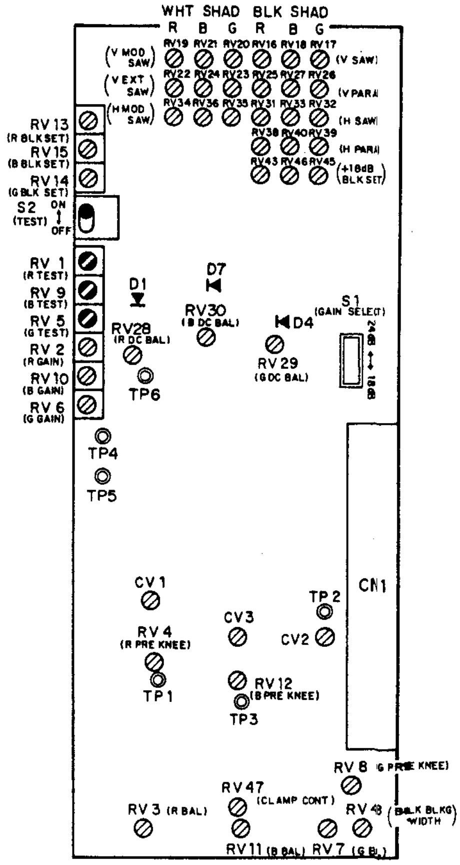
1. S2 TEST /VA-37A board --> "ON"
2. Adjust every chanel as shown below.

	Test point/ extension board	Adj. point/ VA-37A board	Specification
G-ch	TP9	⊘ RV5	A = 0.5±0.01 Vp-p
B-ch	TP5	⊘ RV9	A = 0.5±0.01 Vp-p
R-ch	TP7	⊘ RV1	A = 0.5±0.01 Vp-p




VA
BLK SET
R
B
G
ON
OFF
TEST
TEST LVL
R
B
G
GAIN
R
B
G
2

VA-37A BOARD (PANEL SIDE)


WHT SHAD BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 ON OFF (TEST)
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB
18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV 1
TP 2
CN1
CV3
RV 4 (R PRE KNEE)
CV2
TP 1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV 11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set S2 TEST /VA-37A board at "OFF".

Step 14. Pre Knee Adjustment

- Setting

Equipment : Oscilloscope To be extended : VA-37A board	Trigger : HD (TP25/extension board)

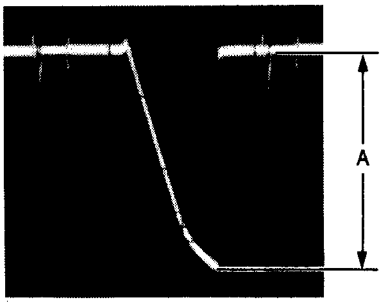
- Preparation

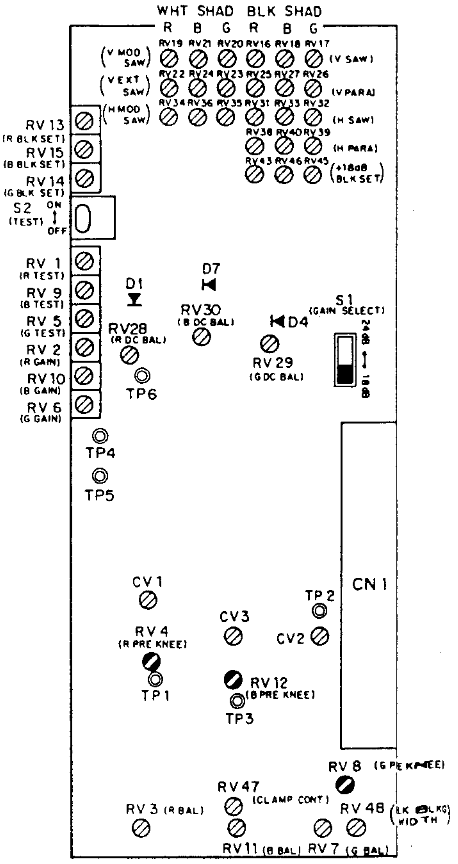
S1(GAIN SELECT)/VA-37A board --> "+18dB"
S2 TEST /VA-37A board --> "ON"
GAIN switch/side panel --> "18"

- Adjustment procedures

Adjust every chanel as shown below.

	Test point/ extension board	Adj. point/ VA-37A board	Specification
G-ch	TP9	⊘ RV8	A = 1.65±0.02 V
B-ch	TP5	⊘ RV12	A = 1.65±0.02 V
R-ch	TP7	⊘ RV4	A = 1.65±0.02 V




WHT SHAD BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB
18dB
TP6
TP4
TP5
CV1
CN 1
TP 2
CV3
CV2
RV 4 (R PRE KNEE)
TP 1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the GAIN selector (side panel) to "0" and S2 TEST /VA-37A board to "OFF".

Step 15. Modulator Balance Adjustment

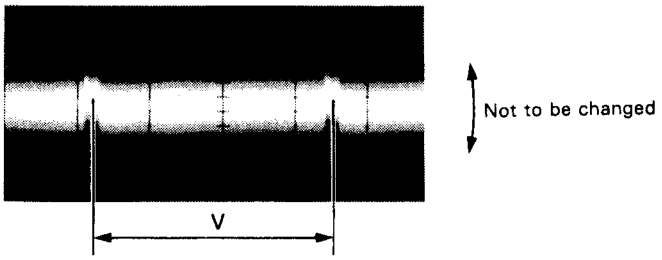
- Setting

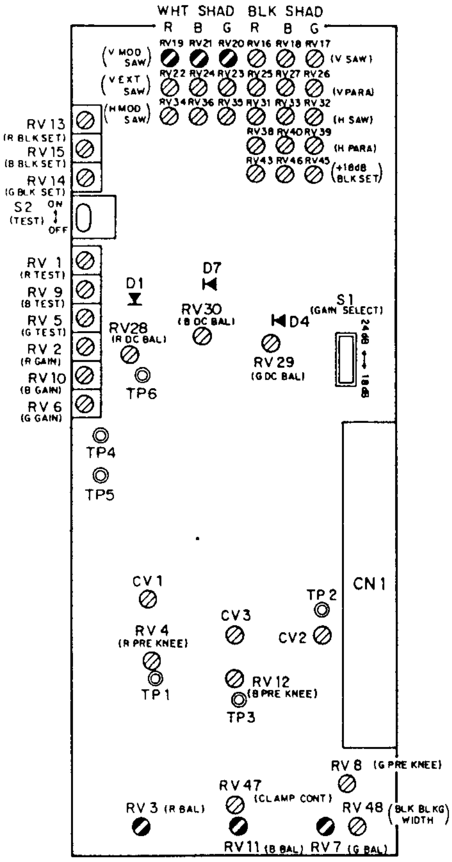
Equipment : Oscilloscope Lens iris : Close "C"	To be extended : VA-37A board Trigger : VD(TP26/extension board)

- Adjustment procedures

Adjust every channel as shown below.

	Test point/ extension board	Adj. point/ VA-37A board	Specification
G-ch	TP9	⊘ RV7	The waveform does not change even if ⊘ RV20/VA-37A board is turned both clockwise and counterclockwise.
B-ch	TP5	⊘ RV11	The waveform does not change even if ⊘ RV21/VA-37A board is turned both clockwise and counterclockwise.
R-ch	TP7	⊘ RV3	The waveform does not change even if ⊘ RV19/VA-37A board is turned both clockwise and counterclockwise.


Not to be changed
V


WHT SHAD BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV13 (R BLK SET)
RV15 (B BLK SET)
RV14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
TP6
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB 18dB
TP4
TP5
CV1
TP2
CN1
CV3
RV4 (R PRE KNEE)
CV2
TP1
RV12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, be sure to carry out step 19. White Shading Adjustment.

Step 16. Gamma Balance Adjustment

- Note

Be sure to complete step 13. Test Signal Waveform Adjustment, or this adjustment will become invalid.

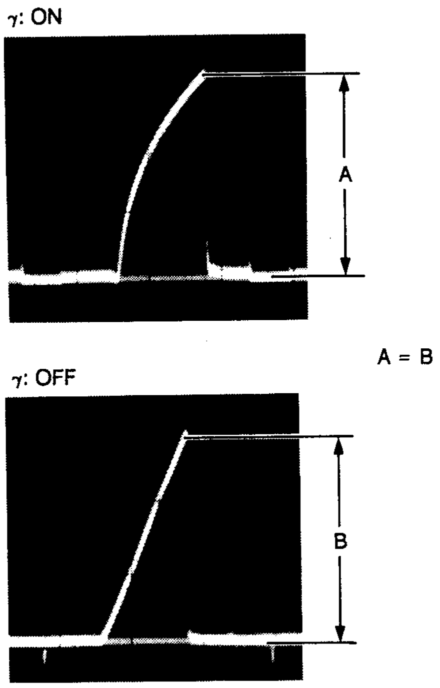
- Setting

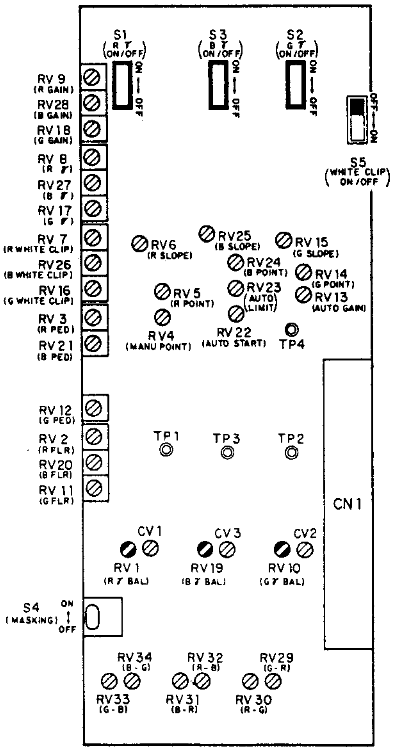
Equipment : Oscilloscope To be extended : PR-78 board	Trigger : HD (TP25/extension board)

- Adjustment procedures

1. S2 TEST /VA-37A board --> "ON"
   S5 (WHT CLIP)/PR-78 board --> "OFF"
2. Adjust every chanel as shown below.

	Test point/ extension board	Adj. point/ PR-78 board	Specification
G-ch	TP17	● RV10	The peak level does not change even if the S2 (G γ)/PR-78 board is set to ON or OFF.
B-ch	TP16	● RV19	The peak level does not change even if the S3 (B γ)/PR-78 board is set to ON or OFF.
R-ch	TP18	● RV1	The peak level does not change even if the S1 (R γ)/PR-78 board is set to ON or OFF.




S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON — OFF
OFF — ON
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV 16 (G WHITE CLIP)
RV 3 (R PED)
RV 21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV 5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B-G)
RV 32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV 31 (B-R)
RV 30 (R-G)

PR-78 BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the switches as follows.
S5 (WHT CLIP & KNEE)/PR-78 board --> "ON"
S2 TEST /VA-37A board --> "OFF"
S1 (R γ)/PR-78 board --> "ON", S2 (G γ)/PR-78 board --> "ON", S3 (B γ)/PR-78 board --> "ON"

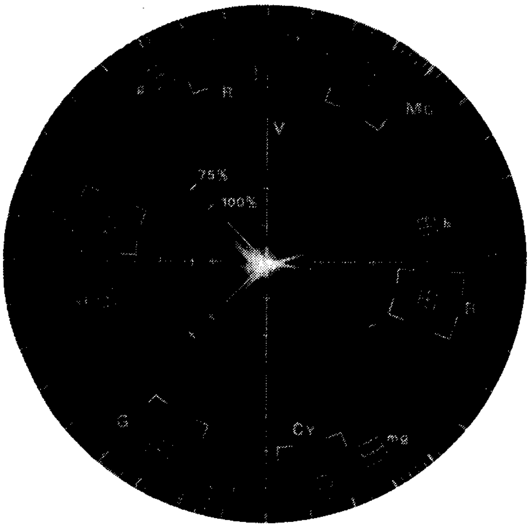
Step 17. Carrier Balance Adjustment

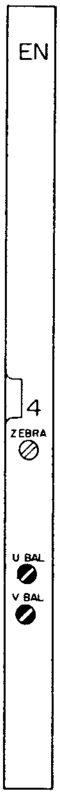
- Setting

Equipment :	Vectorscope (MAX Gain)

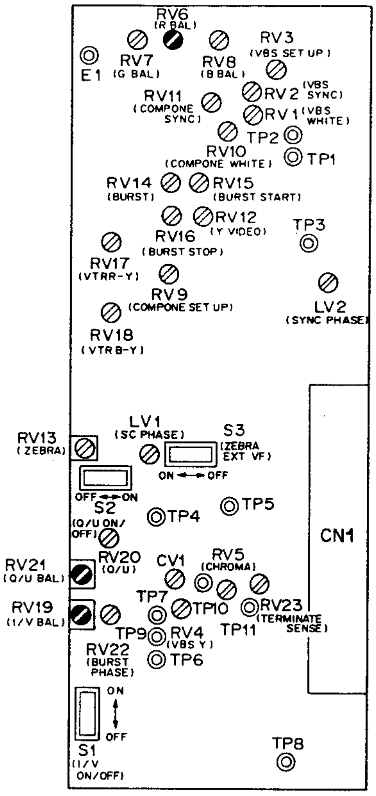
- Adjustment procedures

1. OUTPUT/DCC switch (side panel) --> "BARS/OFF"
   ENC/RGB switch (side panel) --> "ENC"
2. Adjust ⊘ RV19 V BAL and ⊘ RV21 U BAL /EN-69P board so as to center the black beam spot on the vectorscope.


R
Mg
V
75%
100%
B
G
CY
mg


EN
4
ZEBRA
U BAL
V BAL

EN-69P BOARD (PANEL SIDE)


RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV16 (BURST STOP)
RV17 (VTRR-Y)
RV9 (COMPONE SET UP)
LV2 (SYNC PHASE)
RV18 (VTRB-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ← → OFF
RV13 (ZEBRA)
OFF ← → ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV21 (Q/U BAL)
TP7
RV19 (I/V BAL)
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

Note: When black spots cannot be discriminated due to several beam spots, turn the ⊘ RV6/EN-69P board. The black beam spots cannot be shifted. In this case, after adjustment is completed, perform step 28. Color Bar Adjustment.

Step 18. Balck Shading Adjustment

- Setting

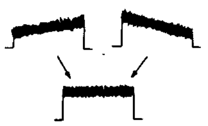
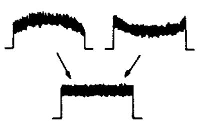
Equipment : Waveform monitor (LUM mode)	To be extended : VA-37A board

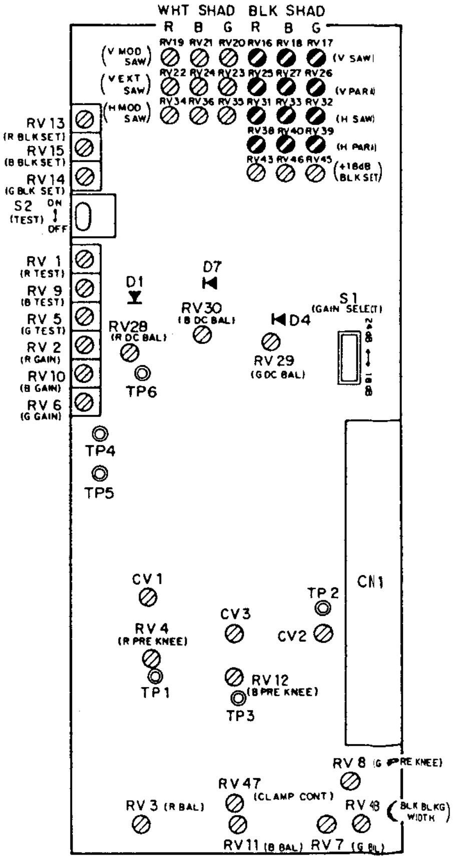
- Preparation

1. Lens iris --> Close "C"
   Gain switch (side panel) --> "18"
   ENC/RGB switch (side panel) --> "RGB"
   S2 TEST /VA-37A board --> "OFF"
2. Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70 mV.

- Adjustment procedures

Adjust every channel as shown below.

	Switches Setting (side panel)	Adjusting Point/VA-37A board			
		H SAW	V SAW	H PARA	V PARA
G	G/OFF → G R/OFF/B → OFF	⊘ RV32	⊘ RV17	⊘ RV39	⊘ RV26
R	G/OFF → OFF R/OFF/B → R	⊘ RV31	⊘ RV16	⊘ RV38	⊘ RV25
B	G/OFF → OFF R/OFF/B → B	⊘ RV33	⊘ RV18	⊘ RV40	⊘ RV27
	TEST OUT terminal				


WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV28 (R DC BAL)
RV30 (B DC BAL)
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB
18dB
TP6
TP4
TP5
CV 1
RV 4 (R PRE KNEE)
TP 1
CV3
RV 12 (B PRE KNEE)
TP3
TP 2
CV2
CN1
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV 11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the GAIN selector (side panel) at "0" and the PEDESTAL control (side panel) at mechanical center.

Step 19. White Shading Adjustment

- Note

> - Be sure to complete step 15. Modulator Balance Adjustment, or this adjustment will affect the black shading adjustment.
> - When using the lens with the EXTENDER attached, carry out the V EXT SAW adjustment. Before this adjustmet, set the EXT lever of lens at X2 position and adjust the iris control so that the video level at TEST OUT terminal is 700±10 mV. After this adjustment is completed, set the EXT lever at X1 position.

- Setting

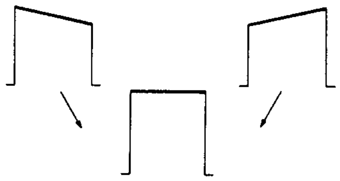
Equipment : Waveform monitor (WFM) Object : White window chart	To be extended : VA-37A board

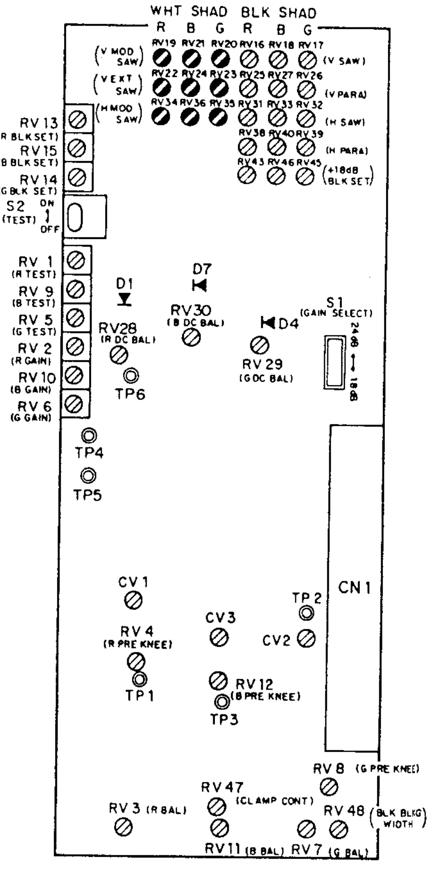
- Preparation

1. ENC/RGB switch (side panel) --> "RGB"
   S5 (WHT CLIP)/PR-78 board --> "OFF"
2. Set the zoom control at TELE and shoot the white area of white window chart.
3. Adjust the iris control so that the video level at the TEST OUT terminal is 700±10 mV.

- Adjustment procedures

Adjust every channel as shown below.

	Switches Setting (side panel)	Adjusting Point/VA-37A board		
		H MOD SAW	V MOD SAW	V EXT SAW
G	G/OFF → G R/OFF/B → OFF	⊘ RV35	⊘ RV20	⊘ RV23
R	G/OFF → OFF R/OFF/B → R	⊘ RV34	⊘ RV19	⊘ RV22
B	G/OFF → OFF R/OFF/B → B	⊘ RV36	⊘ RV21	⊘ RV24
	TEST OUT terminal			


WHT SHAD
BLK SHAD
R
B
G
R
B
G
(V MOD SAW)
RV19
RV21
RV20
RV16
RV18
RV17
(V SAW)
(V EXT SAW)
RV22
RV24
RV23
RV25
RV27
RV26
(V PARA)
(H MOD SAW)
RV34
RV36
RV35
RV31
RV33
RV32
(H SAW)
RV38
RV40
RV39
(H PARA)
RV43
RV46
RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB
18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV 1
CV 3
TP 2
CN 1
RV 4 (R PRE KNEE)
CV2
TP 1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

Note : After this adjustment is completed, set the S5 (WHT CLIP & KNEE)/PR-78 board at "ON".

Step 20. Black Set · Pedestal Adjustment

- Note

Be sure to reset the compensation data in the microprocessor, or this adjustment will become invalid.
(See 4-1-3. Precautions on Adjustments)

- Setting

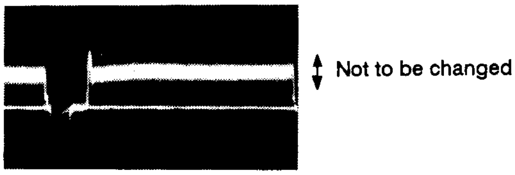
Equipment : Waveform monitor, Vectorscope (MAX Gain)	To be extended : VA-37A board

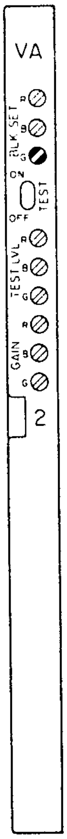
- Preparation

1. Lens iris --> Close "C"
   ENC/RGB switch (side panel) --> "RGB"
   G/OFF switch (side panel) --> "G"
   R/OFF/B switch (side panel) --> "OFF"
2. Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70 mV.

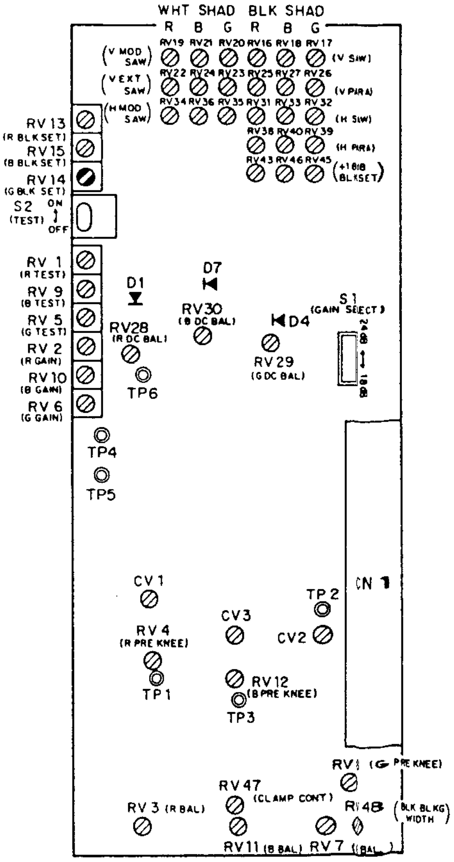
- Adjustment procedures

1. Test Point : TEST OUT terminal
   Adj. point : ⊘ RV14 (G BLK SET)/VA-37A board
   Spec. : The pedestal level does not change even if the GAIN selector is set to "0" or "9".


Not to be changed


VA
BLK SET
R
B
G
ON
TEST
OFF
TEST LVL
R
B
G
GAIN
R
B
G
2

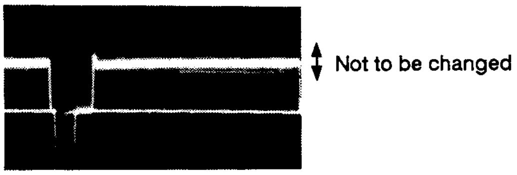
VA-37A BOARD
(PANEL SIDE)


WHT SHAD BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLKSET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
RV 29 (G DC BAL)
S1 (GAIN SELECT)
24dB
18dB
TP6
TP4
TP5
CV 1
TP 2
CN 1
CV3
RV 4 (R PRE KNEE)
CV2
TP 1
RV 12 (B PRE KNEE)
TP3
RV (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (BAL)

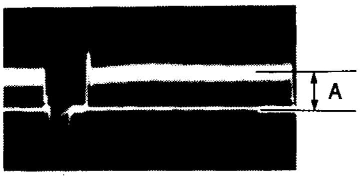
VA-37A BOARD (COMPONENT SIDE)

(Proceed to next page.)

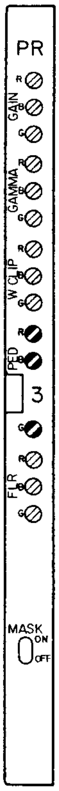
2. Test point : TEST OUT terminal
   Adj. point : ⊘ RV45/VA-37A board
   Spec. : The pedestal level does not change even if the GAIN selector is set to "0" or "18".



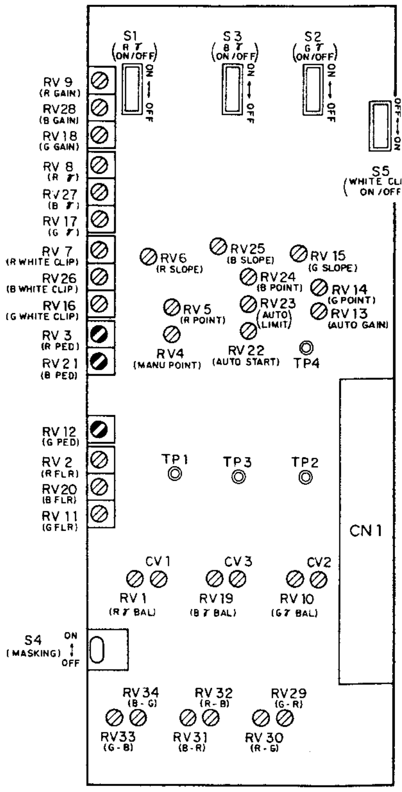
3. ▪ Adjust PEDESTAL control (side panel) so that the DC level at TP6 on extension board is 2.5±0.1 Vdc.
   ▪ GAIN selector (side panel) --> "0"
4. Test point : TEST OUT terminal
   Adj. point : ⊘ RV12/PR-78 board
   Spec. : A = 20±5 mV



5. ENC/RGB switch (side panel) --> "ENC"


PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

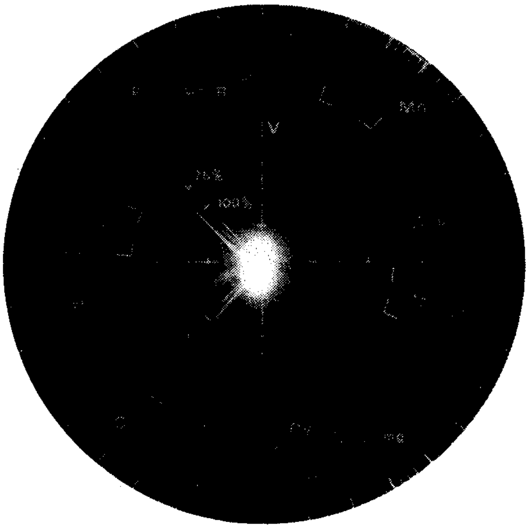
PR-78 BOARD
(PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON ↔ OFF
S5 (WHITE CLIP ON/OFF)
OFF ↔ ON
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV 5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON ↕ OFF
RV34 (B - G)
RV 32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

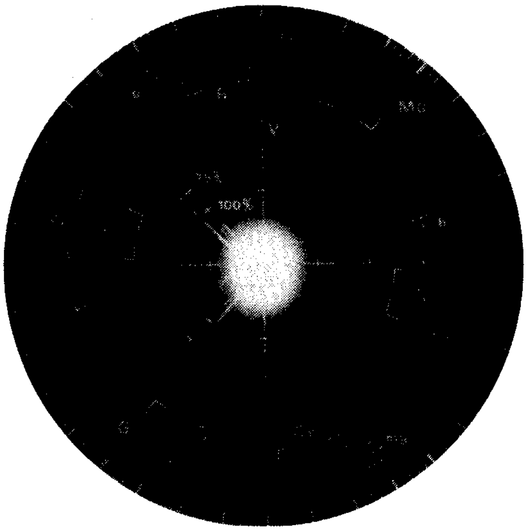
PR-78 BOARD (COMPONENT SIDE)

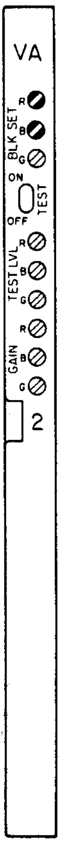
⇩ (Proceed to next page)

6. Test point : TEST OUT terminal
   Adj. point : ⊘ RV3, ⊘ RV21/PR-78 board
   Spec. : The beam spot should be positioned in the center of the vectorscope screen.

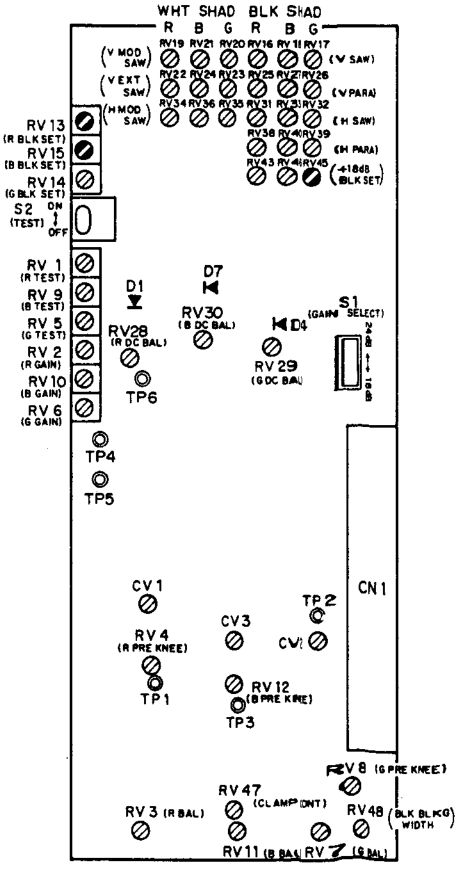


7. GAIN selector (side panel) --> "9"
8. Test point : TEST OUT terminal
   Adj. point : ⊘ RV13, ⊘ RV15/VA-37A borad
   Spec. : The beam spot should be positioned in the center of the vectorscope screen.




VA
BLK SET
R
B
G
ON
TEST
OFF
TEST LVL
R
B
G
GAIN
R
B
G
2

VA-37A BOARD
(PANEL SIDE)

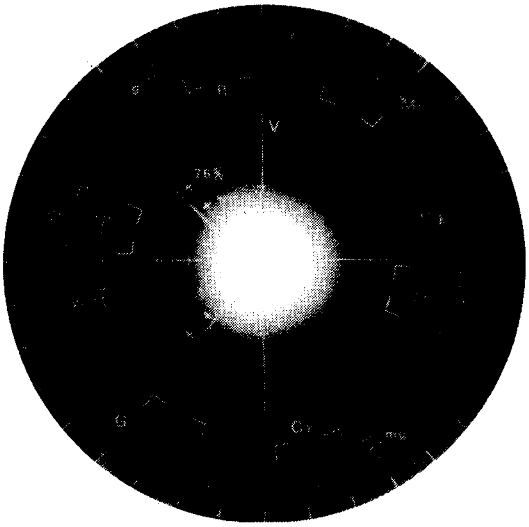

WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV44 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB
18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV1
CN1
TP2
CV3
CV2
RV 4 (R PRE KNEE)
TP1
RV 12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

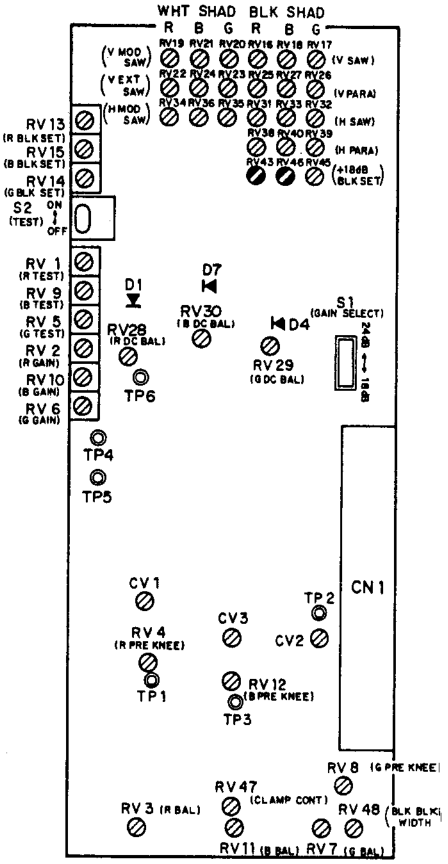
VA-37A BOARD (COMPONENT SIDE)

9. GAIN selector (side panel) --> "18"

(Proceed to next page)

10. Test point : TEST OUT terminal
Adj. point : ⊘ RV43, ⊘ RV46/VA-37A board
Spec. : The beam spot should be positioned in the center of the vectorscope screen.





WHT SHAD
BLK SHAD
R
B
G
R
B
G
RV19
RV21
RV20
RV16
RV18
RV17
(V MOD SAW)
(V SAW)
RV22
RV24
RV23
RV25
RV27
RV26
(V EXT SAW)
(V PARA)
RV34
RV36
RV35
RV31
RV33
RV32
(H MOD SAW)
(H SAW)
RV38
RV40
RV39
(H PARA)
RV43
RV46
RV45
(+18dB BLK SET)
RV13 (R BLK SET)
RV15 (B BLK SET)
RV14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB
18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV1
TP2
CN1
CV3
CV2
RV 4 (R PRE KNEE)
TP1
RV12 (B PRE KNEE)
TP3
RV 8 (G PRE KNEE)
RV47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLK WIDTH)
RV11 (B BAL)
RV 7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

11. Repeat item 6 to 10 so as to center the beam spot on the vectorscope, even if the GAIN selector (side panel) is set to "0", "9" or "18".

- Note

After this adjustment is completed, set the GAIN selector (side panel) to "0".

Step 21. Flare Adjustment

- Note

Repeat carrying out this adjustment after step 20. Black Set · Pedestal Adjustment is carried out three or four times.

- Setting

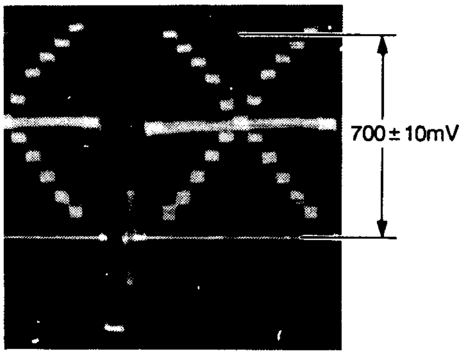
Object : Grayscale chart	Equipment : Waveform monitor

- Preparation

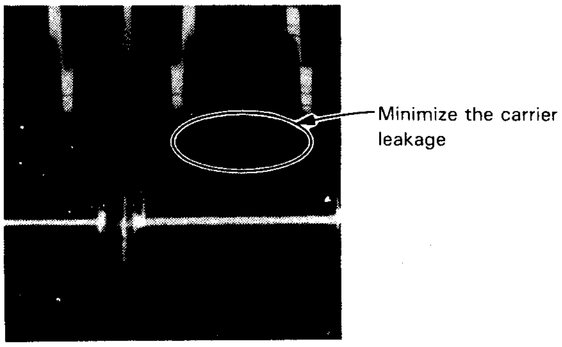
1. ENC/RGB switch (side panel) --> "ENC".
   Ø RV11 G FLR /PR-78 board --> fully counterclockwise ↺
2. As shown right, stick non-reflective and non-photo conductive cloth (Such as velvet) as a reference of the black level.

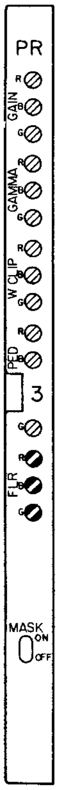
- Adjustment procedures

1. Adjust the zoom control so that the grayscale chart frame touches the underscaned picture frame on the monitor screen.
2. Test point : TEST OUT terminal
   Adj. point : Lens iris
   Spec. : 700±10 mV

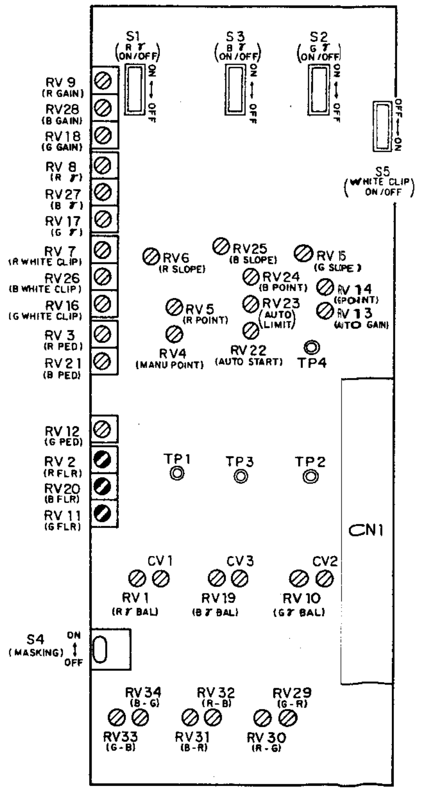


3. Open the iris control 1 more stop thatn F value of item 2.
4. Test point : TEST OUT terminal
   Adj.point : Ø RV2, Ø RV20/PR-78 board
   Spec. : The carrier leakage of black level should be minimized.




PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

PR-78 BOARD
(PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON ↔ OFF
OFF ↔ ON
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV 5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B - G)
RV32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

PR-78 BOARD (COMPONENT SIDE)

Step 22. PR OUT Gain Adjustment

- Note

Be sure to complete step 16. Gamma Balance Adjustment, or this adjustment will become invalid.

- Setting

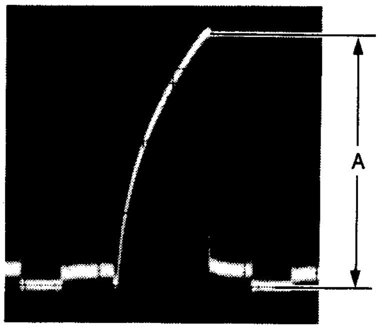
Equipment : Oscilloscope, Waveform monitor To be extended : PR-78 board	Trigger : HD (TP25/extension board)

- Preparation

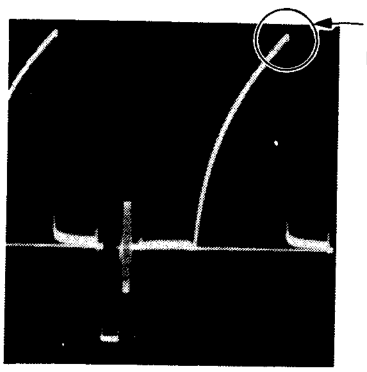
S2 TEST /VA-37A board	--> "ON"	S3 (B γ)/PR-78 board	--> "ON"
S1 (R γ)/PR-78 board	--> "ON"	S5 (WHT CLIP)/PR-78 board	--> "OFF"
S2 (R γ)/PR-78 board	--> "ON"		

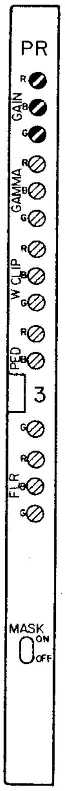
- Adjustment procedures

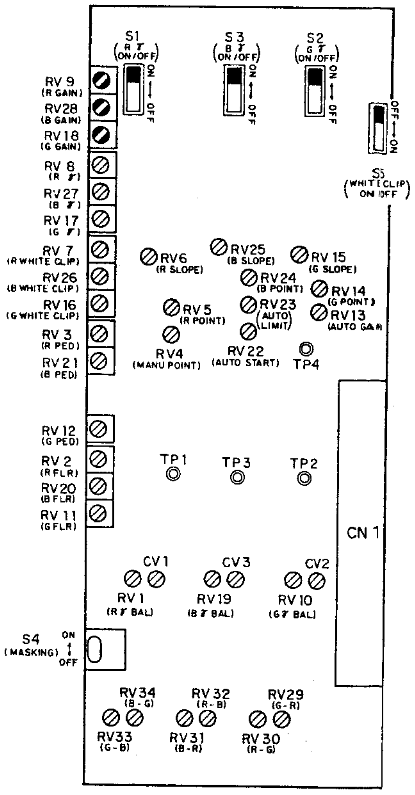
1. Test point : TP17/extension board
   Adj. point : ⊘ RV8 G GAIN /PR-78 board
   Spec. : A = 0.7±0.02 Vp-p



2. ENC/RGB switch (side panel) --> "ENC"
3. Test point : TEST OUT terminal
   Adj. point : ⊘ RV9 R GAIN, ⊘ RV28 B GAIN /PR-78 board
   Spec. : The carrier leakage of the peak level at TEST OUT terminal should be minimized.


Minimize the carrier leakage


PR
GAIN R B G
GAMMA R B G
W CLIP R B G
PED R B
3
G
FLR R B G
MASK ON OFF
PR-78 BOARD (PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON ↔ OFF
RV9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV8 (R γ)
RV27 (B γ)
RV17 (G γ)
RV7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV3 (R PED)
RV21 (B PED)
S5 (WHITE CLIP ON/OFF)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV15 (G SLOPE)
RV24 (B POINT)
RV14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV22 (AUTO START)
TP4
RV12 (G PED)
RV2 (R FLR)
RV20 (B FLR)
RV11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV1 (R γ BAL)
RV19 (B γ BAL)
RV10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B-G)
RV32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV31 (B-R)
RV30 (R-G)
PR-78 BOARD (COMPONENT SIDE)

⇩ (Proceed to next page)

- Note

After this adjustment is completed, set the S2 TEST switch/VA-37A board to "OFF" and the S5 (WHT CLIP & KNEE)/PR-78 board to "ON".

Step 23. RGB Video Level Adjustment

- Note

Be sure to complete step 22. PR OUT Gain Adjustment, or this adjustment will become invalid.

- Setting

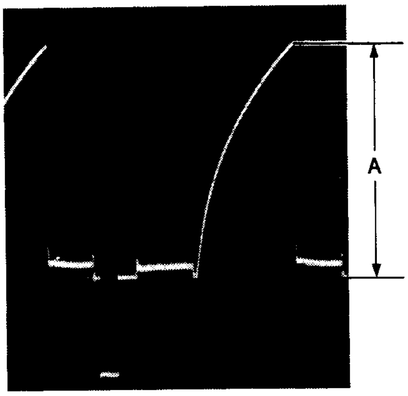
Equipment : Waveform monitor (WFM)

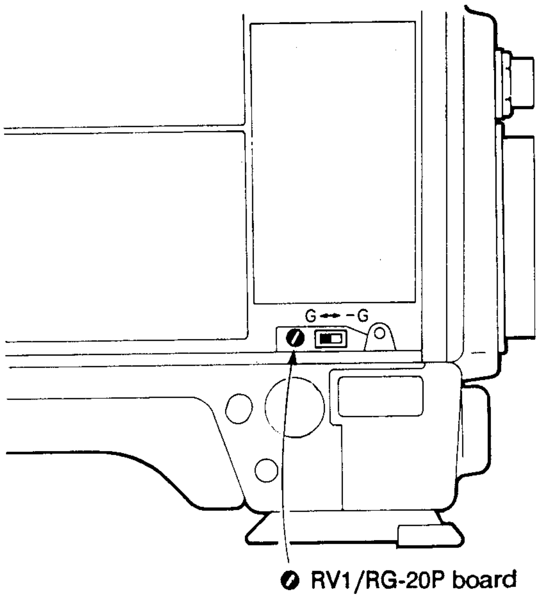
- Preparation

ENC/RGB switch (side panel) --> "RGB"
G/OFF switch (side panel) --> "G"
R/OFF/B switch (side panel) --> "OFF"
S2 TEST /VA-37A board --> "ON"
S5 (WHT CLIP)/PR-78 board --> "OFF"

- Adjustment procedures

Test point : TEST OUT terminal
Adj. point : ⊘ RV1/RG-20P board
Spec. : A = 700±10 mV





- Note

After this adjustment is completed, set the S2 TEST /VA-37A board to "OFF" and S5 (WHT CLIP & KNEE)/PR-78 board to "ON".

Step 24. EN Y Level Adjustment

- Note

Be sure to complete step 23. RGB Video Level Adjustment, or this adjustment will become invalid.

- Setting

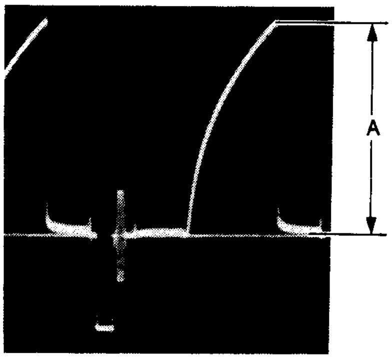
Equipment : Waveform monitor (WFM)	To be extended : EN-69P board

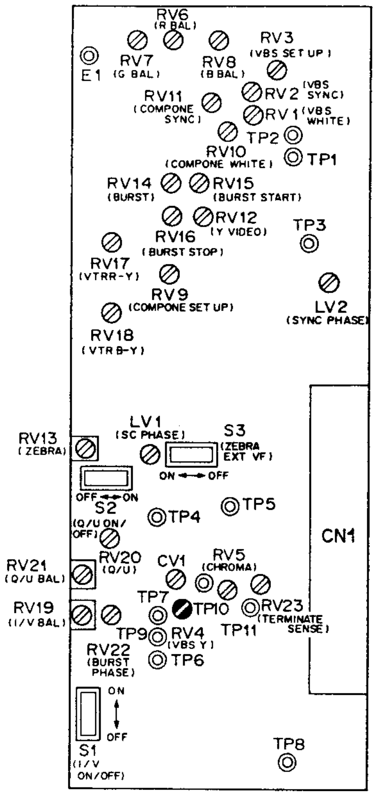
- Preparation

OUTPUT/DCC switch (side panel) --> "CAM/OFF"
ENC/RGB switch (side panel) --> "ENC"
S2 TEST /VA-37A board --> "ON"
S5 (WHT CLIP)/PR-78 board --> "OFF"

- Adjustment procedures

Test point : TEST OUT terminal
Adj. point : ⊘ RV4/EN-69P board
Spec. : A = 700±10 mV




RV6
(R BAL)
RV3
(VBS SET UP)
RV7
(G BAL)
RV8
(B BAL)
E1
RV11
(COMPONE SYNC)
RV2
(VBS SYNC)
RV1
(VBS WHITE)
TP2
RV10
(COMPONE WHITE)
TP1
RV14
(BURST)
RV15
(BURST START)
RV12
(Y VIDEO)
TP3
RV16
(BURST STOP)
RV17
(VTRR-Y)
RV9
(COMPONE SET UP)
LV2
(SYNC PHASE)
RV18
(VTR B-Y)
LV1
(SC PHASE)
S3
(ZEBRA EXT VF)
ON ← → OFF
RV13
(ZEBRA)
OFF ← → ON
S2
(Q/U ON/OFF)
TP4
TP5
CN1
RV20
(Q/U)
CV1
RV5
(CHROMA)
RV21
(Q/U BAL)
TP7
TP10
RV23
(TERMINATE SENSE)
RV19
(I/V BAL)
TP9
RV4
(VBS Y)
TP11
RV22
(BURST PHASE)
TP6
ON
OFF
S1
(I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the switches as follows.

- S2 TEST /VA-37A board --> "OFF"
- S5 (WHT CLIP)/PR-78 board --> "ON"

Step 25. Gamma Correction Adjustment

- Note

Be sure to complete step 22. PR OUT Gain Adjustment.

- Setting

Object : Grayscale chart
Equipment : Waveform monitor

To be extended : PR-78 board

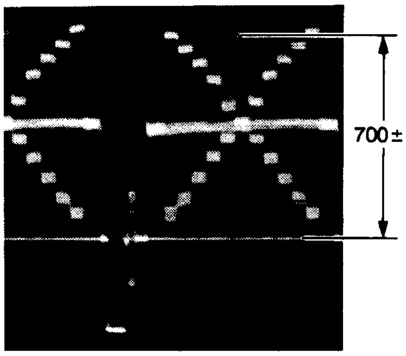
- Preparation

ENC/RGB switch (side panel) --> "RGB"
G/OFF switch (side panel) --> "G"
R/OFF/B switch (side panel) --> "OFF"
S5 (WHT CLIP)/PR-78 board --> "OFF"

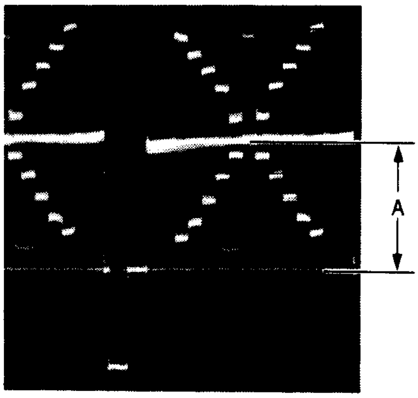
S1 (R γ)/PR-78 board --> "ON"
S2 (G γ)/PR-78 board--> "ON"
S3 (B γ)/PR-78 board --> "ON"

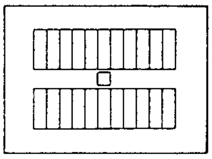
- Adjustment procedures

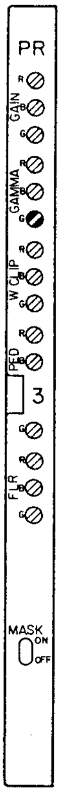
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV.

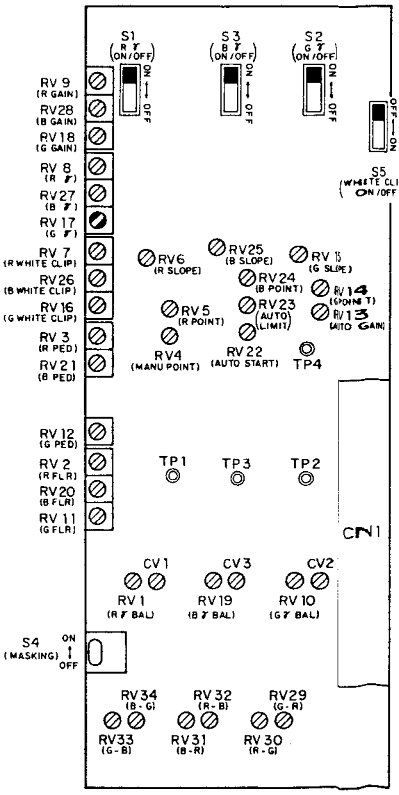


3. Test point : TEST OUT terminal
   Adj. point : ⊘ RV17/PR-78 board
   Spec. : Cross point level "A" = 400±20 mV



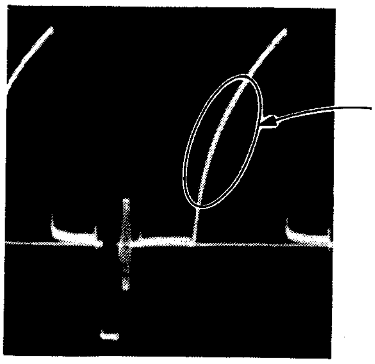

(monitor screen)

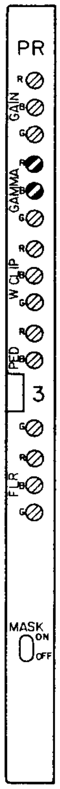

PR
R
GAIN B
G
R
GAMMA B
G
R
W CLIP B
G
R
PED B
3
G
R
FLR B
G
MASK
ON
OFF
PR-78 BOARD (PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON
OFF
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING)
ON
OFF
RV34 (B-G)
RV32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV31 (B-R)
RV 30 (R-G)
PR-78 BOARD (COMPONENT SIDE)

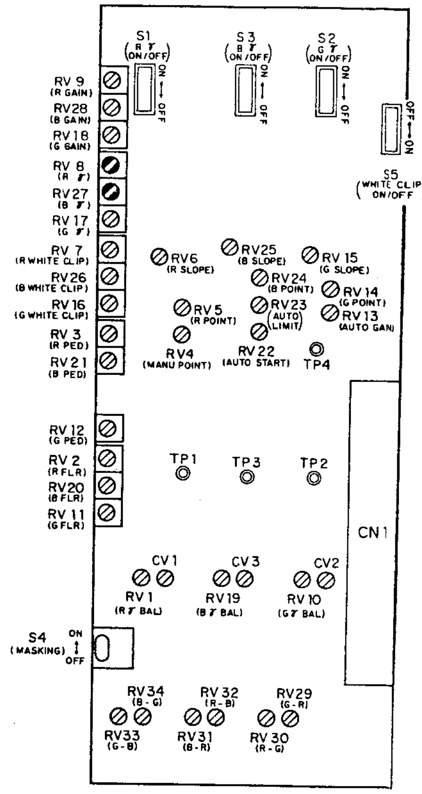
⇩ (Proceed to next page)

4. ENC/RGB switch (side panel) --> "ENC"
   S2 TEST /VA-37A board --> "ON"
5. Test point : TEST OUT terminal
   Adj. point : ● RV8 R GAMMA /PR-78 board
   ● RV27 B GAMMA /PR-78 board


Minimize the carrier leakage


PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

PR-78 BOARD (PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON ↔ OFF
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B - G)
RV 32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

PR-78 BOARD (COMPONENT SIDE)

- Note

- After this adjustment is completed, set the switches as follows:
  S2 TEST /VA-37A board --> "OFF"
  S5 (WHT CLIP & KNEE)/PR-78 board --> "ON"
- After this adjustment is completed, confirm that step 20. Black Set Pedestal Adjustment is satisfied with the specification.

Step 26. Manual Knee ·White Clip Adjustment

- Note

Be sure to complete step 14. Pre Knee Adjustment.

- Setting

Equipment : Waveform monitor (WFM)	To be extended : PR-78 board

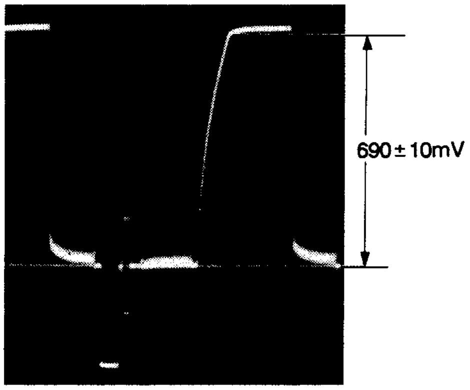
- Preparation

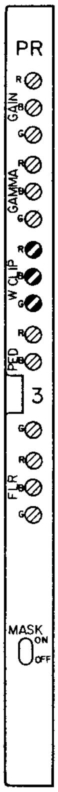
GAIN switch (side panel) --> "9"
OUTPUT/DCC switch (side panel) --> "CAM/OFF"
ENC/RGB switch (side panel) --> "RGB"
G/OFF switch (side panel) --> "G"
R/OFF/B switch (side panel) --> "OFF"
S2(TEST)/VA-37A board --> "ON"
S1(R γ)/PR-78 board --> "ON"
S2(G γ)/PR-78 board --> "ON"
S3(B γ)/PR-78 board --> "ON"
S5(WHT CLIP)/PR-78 board --> "ON"

⊘ RV14/PR-78 board --> mechanical center
⊘ RV5/PR-78 board --> mechanical center
⊘ RV24/PR-78 board --> mechanical center
⊘ RV15/PR-78 board --> fully clockwise ↻
⊘ RV6/PR-78 board --> fully clockwise ↻
⊘ RV25/PR-78 board --> fully clockwise ↻
⊘ RV16/PR-78 board --> fully counterclockwise ↺
⊘ RV7/PR-78 board --> fully counterclockwise ↺
⊘ RV26/PR-78 board --> fully counterclockwise ↺

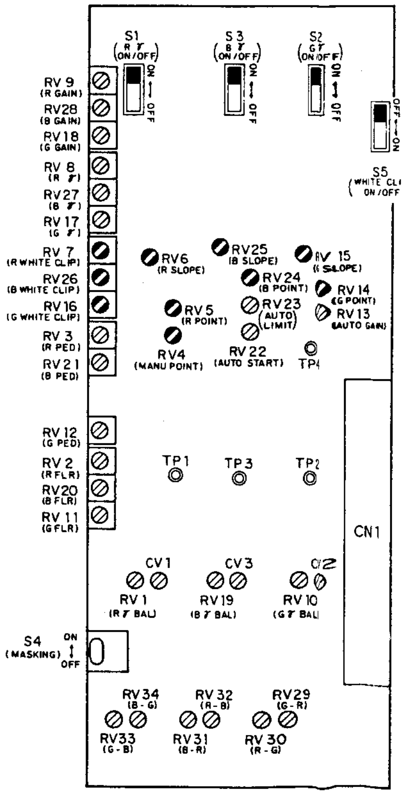
- Adjustment procedures

1. Adjust ⊘ RV4(MANU POINT)/PR-78 board so that the knee point level at TEST OUT terminal is 690 ± 10 mV.




PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

PR-78 BOARD
(PANEL SIDE)


S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON
OFF
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B - G)
RV 32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

PR-78 BOARD (COMPONENT SIDE)

2. ENC/RGB switch (side panel) --> "ENC"
   G/OFF switch (side panel) --> "OFF"

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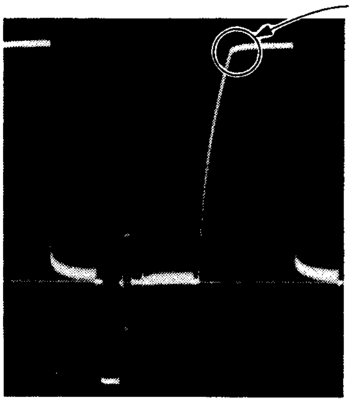
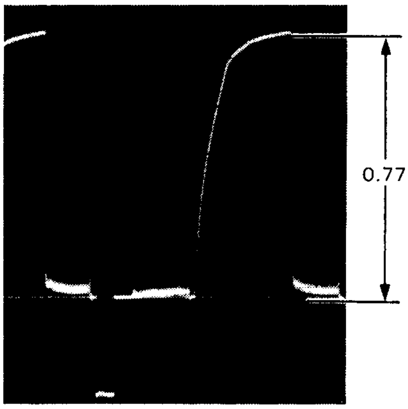
3. Adjust ⊘RV5 (R POINT) and ⊘ RV24 (B POINT)/PR-78 board so that the carrier leakage at the knee point of the TEST SAW waveform is minimized.

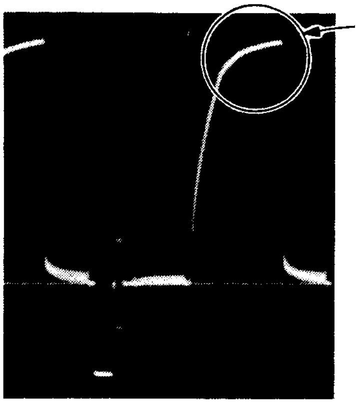


Minimize the carrier leakage

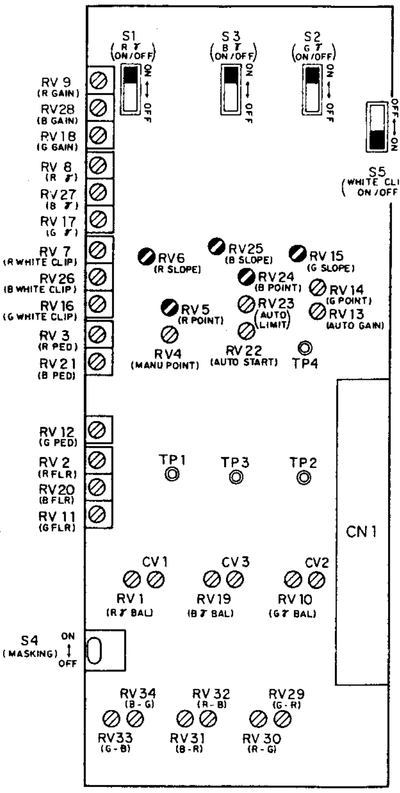
4. ENC/RGB switch (side panel) --> "RGB"
   G/OFF switch (side panel) --> "G"
5. Adjust ⊘ RV15 (G SLOPE)/PR-78 board so that the peak level of the TEST SAW waveform is 0.78±0.01 V.



6. ENC/RGB switch (side panel) --> "ENC"
   G/OFF switch (side panel) --> "OFF"
7. Adjust ⊘ RV6 (R SLOPE) and ⊘ RV25 (B SLOPE)/PR-78 board so that the carrier leakage of the TEST SAW waveform is minimized.



Minimize the carrier leakage

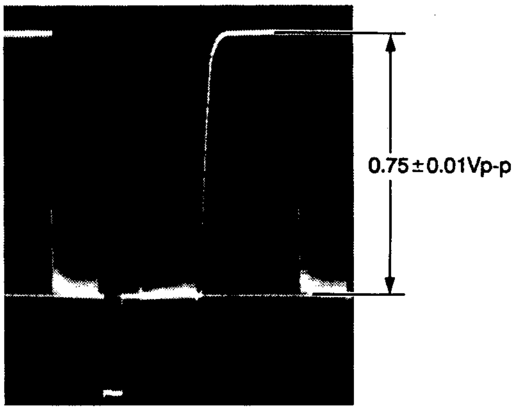

S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON
OFF
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV13 (AUTO GAIN)
RV4 (MANU POINT)
RV22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B - G)
RV32 (R - B)
RV29 (G - R)
RV33 (G - B)
RV31 (B - R)
RV 30 (R - G)

PR-78 BOARD (COMPONENT SIDE)

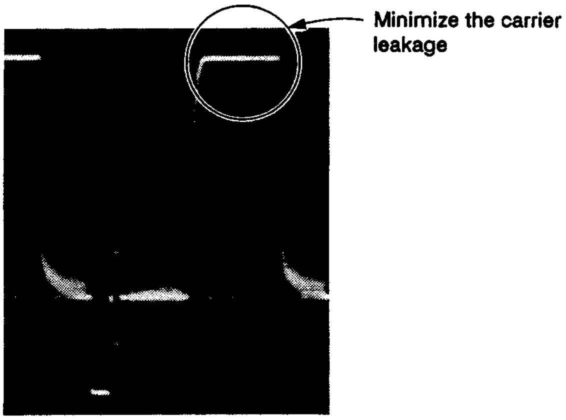
(Proceed to next page)

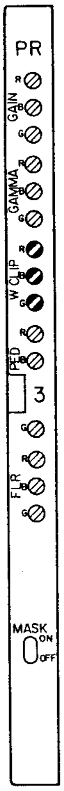
8. ■ ENC/RGB switch (side panel) --> "RGB"
   ■ G/OFF switch (side panel) --> "G"
   ■ GAIN switch (side panel) --> "18"

9. Adjust ⊘ RV16 (G WHITE CLIP)/PR-78 board so that the TEST SAW waveform clips at 0.75±0.01 V.

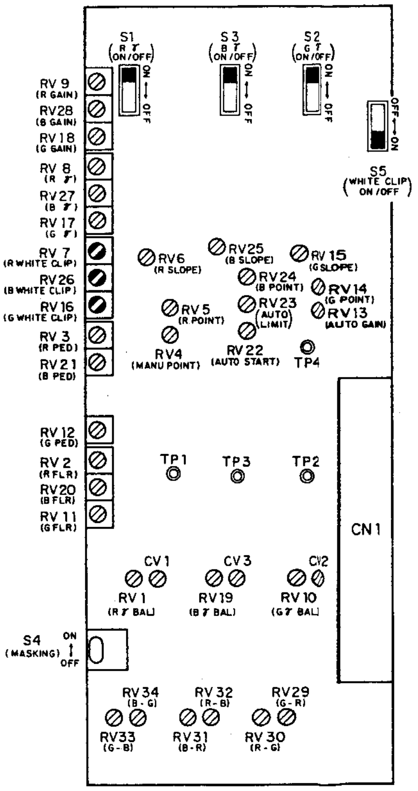


10. ENC/RGB switch (side panel) --> "ENC"
    G/OFF switch (side panel) --> "OFF"
11. Adjust ⊘ RV7 (R WHT CLIP) and ⊘ RV26(B WHT CLIP)/PR-78 board so that the carrier leakage of the TEST SAW waveform is minimized.


Minimize the carrier leakage


PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

PR-78 BOARD
(PANEL SIDE)


S1
(R γ ON/OFF)
S3
(B γ ON/OFF)
S2
(G γ ON/OFF)
ON
OFF
S5
(WHITE CLIP ON/OFF)
RV 9
(R GAIN)
RV28
(B GAIN)
RV18
(G GAIN)
RV 8
(R γ)
RV27
(B γ)
RV 17
(G γ)
RV 7
(R WHITE CLIP)
RV26
(B WHITE CLIP)
RV16
(G WHITE CLIP)
RV 3
(R PED)
RV21
(B PED)
RV6
(R SLOPE)
RV25
(B SLOPE)
RV 15
(G SLOPE)
RV24
(B POINT)
RV14
(G POINT)
RV 5
(R POINT)
RV23
(AUTO LIMIT)
RV13
(AUTO GAIN)
RV4
(MANU POINT)
RV22
(AUTO START)
TP4
RV 12
(G PED)
RV 2
(R FLR)
RV20
(B FLR)
RV 11
(G FLR)
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV1
(R γ BAL)
RV19
(B γ BAL)
RV10
(G γ BAL)
S4
(MASKING)
ON
OFF
RV34
(B - G)
RV32
(R - B)
RV29
(G - R)
RV33
(G - B)
RV31
(B - R)
RV30
(R - G)

PR-78 BOARD (COMPONENT SIDE)

■ Note

After this adjustment is completed, be sure to carry out step 27. Auto Knee Adjustment.

Step 27. Auto Knee Adjustment

- Note

Be sure to complete step 26. manual Knee ·White Clip Adjustment.

- Setting

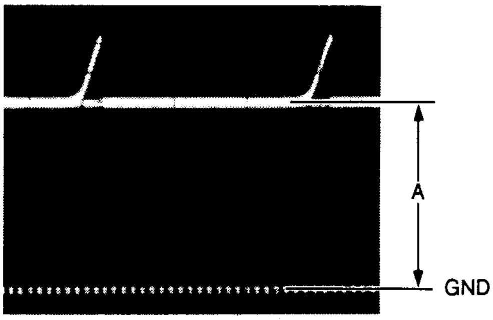
Equipment : Osilloscope, Waveform monitor To be extended : PR-78 board	Trigger : HD (TP25/extension board)

- Preparation

OUTPUT/DCC switch (side panel)	--> "CAM/OFF"	S1 (R γ)/PR-78 board	--> "ON"
GAIN switch (side panel)	--> "0"	S2 (G γ)/PR-78 board	--> "ON"
ENC/RGB switch (side panel)	--> "ENC"	S3 (B γ)/PR-78 board	--> "ON"
S2 (TEST)/VA-37A board	--> "ON"	⊘RV23 (AUTO LIMIT)/PR-78 board	--> mechanical center
S5 (WHT CLIP)/PR-78 board	--> "ON"	⊘RV13 (AUTO GAIN)/PR-78 board	--> fully countered-clockwise↺

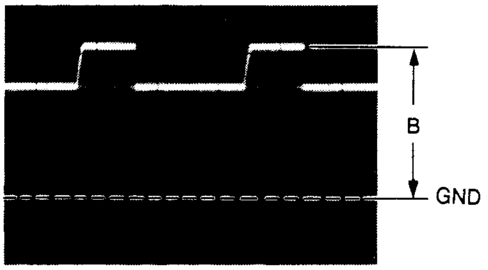
- Adjustment procedures

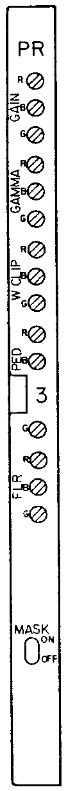
1. Test point : TP4/PR-78 board
   Adj. point : ⊘ RV22/PR-78 board
   Spec. : A = 1.5 ± 0.05 Vdc



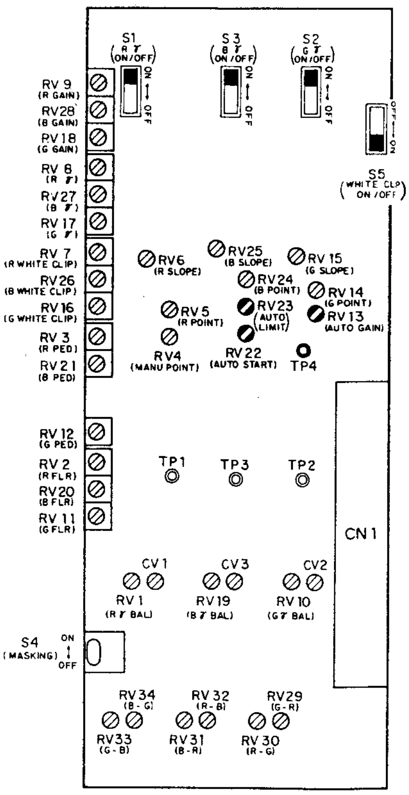
2. GAIN switch (side panel) --> "18"

3. Test point : TP4/PR-78 board
   Adj. point : ⊘ RV23/PR-78 board
   Spec. : B = 2.0±0.05 Vdc




PR
GAIN
R
B
G
GAMMA
R
B
G
W CLIP
R
B
G
PED
R
B
3
G
FLR
R
B
G
MASK
ON
OFF

PR-78 BOARD
(PANEL SIDE)

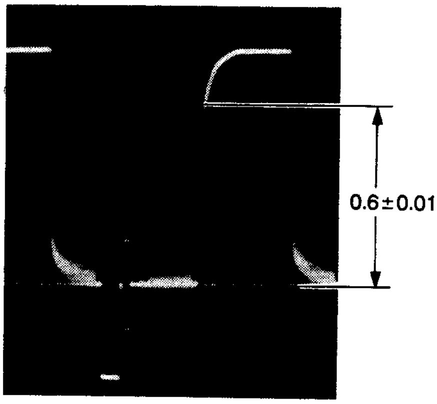

S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON
OFF
S5 (WHITE CLP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV 5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
RV 12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
TP1
TP3
TP2
CN 1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV 10 (G γ BAL)
S4 (MASKING) ON OFF
RV34 (B-G)
RV32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV31 (B-R)
RV 30 (R-G)

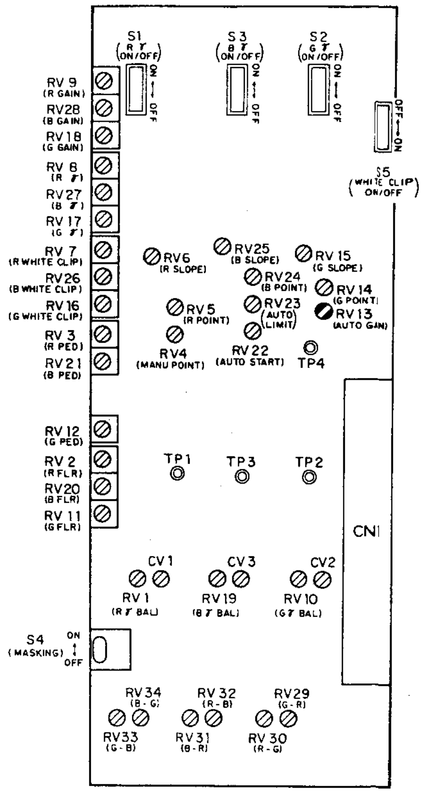
PR-78 BOARD (COMPONENT SIDE)

⇩ (Proceed to next page)

4. OUTPUT/DCC switch (side panel) --> "CAM/ON"

5. Test point : TEST OUT terminal
   Adj. point : ⊘ RV13/PR-78 board
   Adjust : Turn⊘ RV13 on PR-78 board clockwise until the peak part of TEST SAW waveform is not clipped.
   Confirm that the knee point level of TEST SAW waveform is 0.6±0.01 V.




S1 (R γ ON/OFF)
S3 (B γ ON/OFF)
S2 (G γ ON/OFF)
ON ↕ OFF
OFF ↔ ON
S5 (WHITE CLIP ON/OFF)
RV 9 (R GAIN)
RV28 (B GAIN)
RV18 (G GAIN)
RV 8 (R γ)
RV27 (B γ)
RV 17 (G γ)
RV 7 (R WHITE CLIP)
RV26 (B WHITE CLIP)
RV16 (G WHITE CLIP)
RV 3 (R PED)
RV21 (B PED)
RV12 (G PED)
RV 2 (R FLR)
RV20 (B FLR)
RV 11 (G FLR)
RV6 (R SLOPE)
RV25 (B SLOPE)
RV 15 (G SLOPE)
RV24 (B POINT)
RV 14 (G POINT)
RV5 (R POINT)
RV23 (AUTO LIMIT)
RV 13 (AUTO GAIN)
RV4 (MANU POINT)
RV 22 (AUTO START)
TP4
TP1
TP3
TP2
CN1
CV1
CV3
CV2
RV 1 (R γ BAL)
RV19 (B γ BAL)
RV10 (G γ BAL)
S4 (MASKING) ON ↕ OFF
RV34 (B-G)
RV 32 (R-B)
RV29 (G-R)
RV33 (G-B)
RV 31 (B-R)
RV 30 (R-G)

PR-78 BOARD (COMPONENT SIDE)

6. When the knee point level of TEST SAW waveform in item 5 is not satisfied with the specification, carry out step 26. Manual Knee · White clip Adjustment once again.

- Note

After this adjustment is completed, set the switches as follows:

- OUTPUT/DCC switch (side panel) --> "CAM/OFF"
- GAIN switch (side panel) --> "0"
- S2 TEST /VA-37A board --> "OFF"

Step 28. Color-bar Adjustment

- Note

Be sure to complete step 24. EN Y Level Adjustment

- Setting

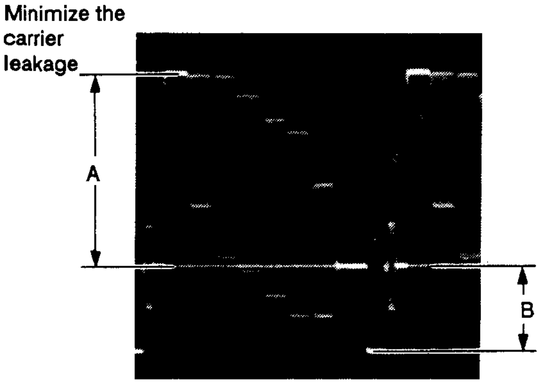
Equipment : Waveform monitor (WFM)	To be extended : EN-69P board

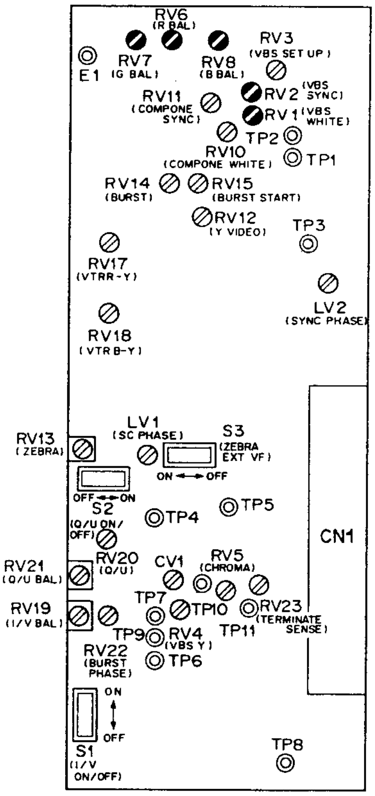
- Preparation

- OUTPUT/DCC switch (side panel) --> “BARS/OFF”
- ENC/RGB switch (side panel) --> “ENC”

- Adjustment procedures

1. Adjust ⊘ RV7, ⊘ RV6 and ⊘ RV8/EN-69P board so that the white level “A” at TEST OUT terminal is700±10 mV and the carrier leakage is minimized.
2. Test pont : TEST OUT terminal
   Adjust : B = 300±10 mV; ⊘ RV2/EN-69P board




RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV2 (VBS SYNC)
RV11 (COMPONE SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV17 (VTRR-Y)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ◄─► OFF
RV13 (ZEBRA)
OFF ◄─► ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV21 (Q/U BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
RV19 (I/V BAL)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD(COMPONENT SIDE)

- Note

After this adjustment is completed, set the OUTPUT/DCC switch (side panel) at “CAM/OFF”.

Step 29. U.V. Gain Adjustment

- Setting

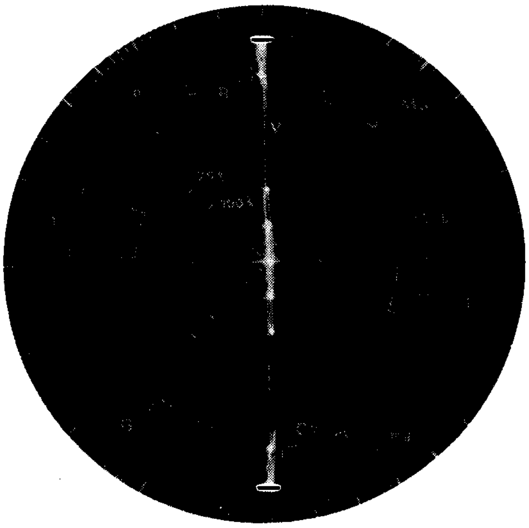
Equipment : Vectorscope	To be extended : EN-69P board

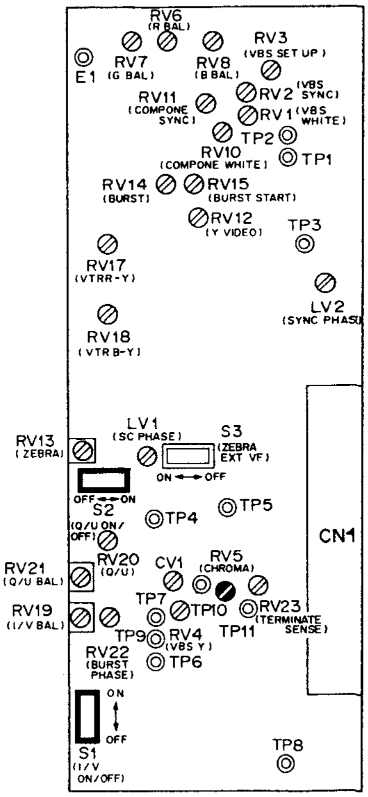
- Preparation

1. OUTPUT/DCC switch (side panel) --> "BARS/OFF"
   S1(V)/EN-69P board --> "ON"
   S2 (U)/EN-69P board --> "OFF"
2. Adjust the PHASE control of the vectorscope so that the V signal is overlapped with V axis on the vectorscope screen.

- Adjustment procedures

1. Test point : TEST OUT terminal
   Adj. point : ● RV5/EN-69P board
   Spec. : The beam spots at both ends of the V signal should be overlapped with the scale of the vectorscope screen.




RV6
(R BAL)
RV3
(VBS SET UP)
E1
RV7
(G BAL)
RV8
(B BAL)
RV2
(VBS SYNC)
RV11
(COMPONE SYNC)
RV1
(VBS WHITE)
TP2
RV10
(COMPONE WHITE)
TP1
RV14
(BURST)
RV15
(BURST START)
RV12
(Y VIDEO)
TP3
RV17
(VTRR-Y)
LV2
(SYNC PHASE)
RV18
(VTR B-Y)
LV1
(SC PHASE)
S3
(ZEBRA EXT VF)
RV13
(ZEBRA)
ON OFF
OFF ON
S2
(Q/U ON/OFF)
TP4
TP5
CN1
RV20
(Q/U)
CV1
RV5
(CHROMA)
RV21
(Q/U BAL)
TP7
TP10
RV23
(TERMINATE SENSE)
RV19
(I/V BAL)
TP9
RV4
(VBS Y)
TP11
RV22
(BURST PHASE)
TP6
ON
OFF
S1
(I/V ON/OFF)
TP8

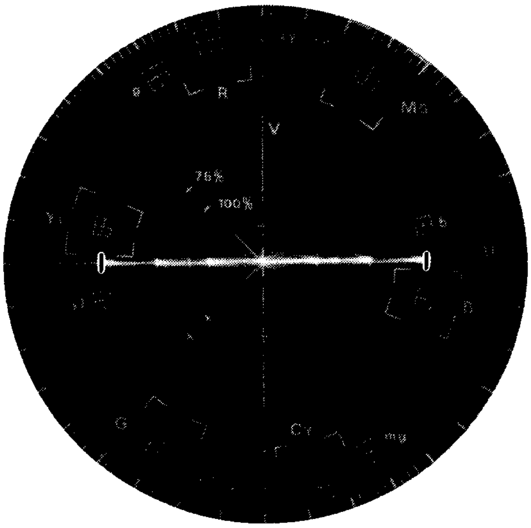
EN-69/69P BOARD(COMPONENT SIDE)

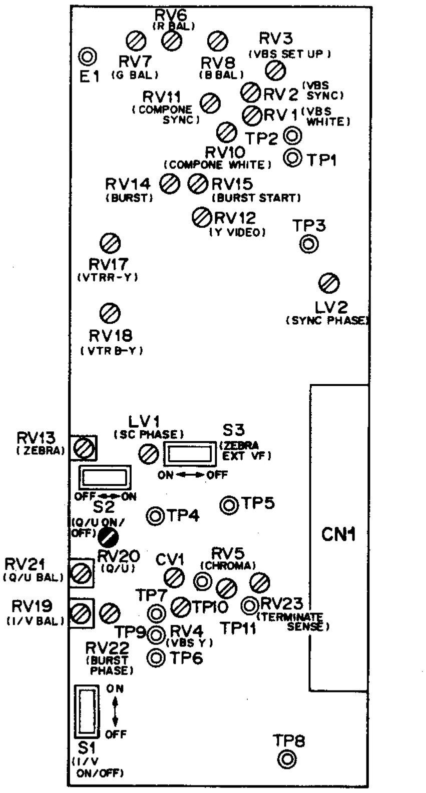
2. S1 (V)/EN-69P board --> "OFF"
   S2 (U)/EN-69P board --> "ON"

3. Adjust the PHASE control of the vectorscope so that the U signal is overlapped with the U axis on the vectorsopce screen.

⇩ (Proceed to next page)

4. Test point : TEST OUT terminal
   Adj. point : ❷ RV20/EN-69P board
   Spec. : The beam spots at both ends of the U signal should be overlapped with the scale of the vectorscope screen.


R
Mg
V
75%
100%
G
Cy


RV6 (R BAL)
RV7 (G BAL)
RV8 (B BAL)
RV3 (VBS SET UP)
E1
RV2 (VBS SYNC)
RV11 (COMPONE SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV17 (VTRR-Y)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ◄—► OFF
RV13 (ZEBRA)
OFF ◄—► ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV21 (Q/U BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
RV19 (I/V BAL)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the switches as follows:

- OUTPUT/DCC switch (side panel) --> "CAM/OFF"
- S1 (V)/EN-69P board --> "ON"
- S2 (U)/EN-69P board --> "ON"

Step 30. Burst Adjustment

- Setting

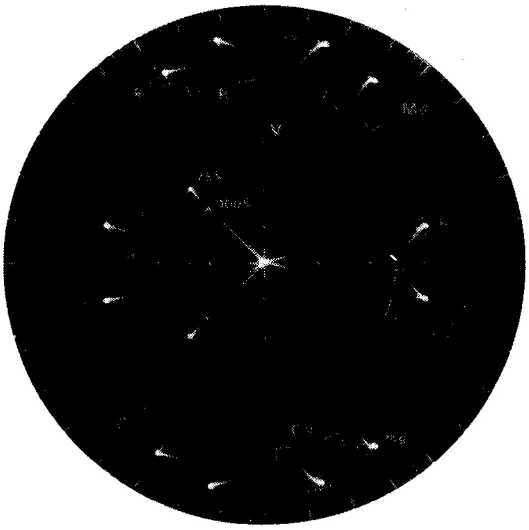
Equipment : Vectorscope	To be extended : EN-69P board

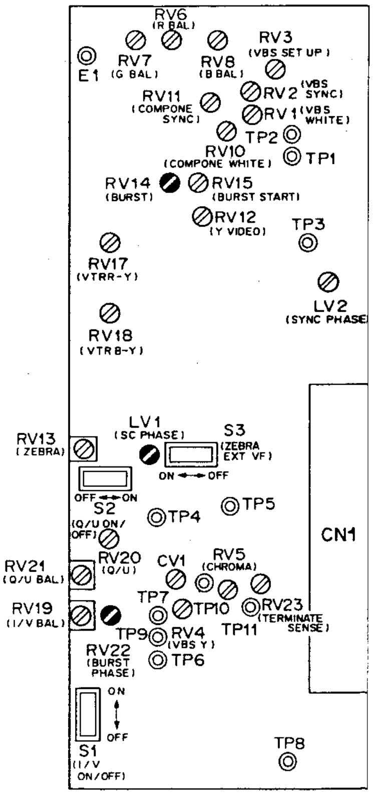
- Preparation

1. S1 (V)/EN-69P board --> "ON" S2 (U)/EN-69P board --> "ON" OUTPUT/DCC switch (side panel) --> "BARS/OFF"	2. Adjust the PHASE control of the vectorscope so that the burst spot is overlapped with 75% scale on the vectroscope screen.

- Adjustment procedures

1. Test point : TEST OUT terminal
   Adjust : Adjust the PHASE control of the vectroscope, ⊘RV14 (BURST), ⊘ RV22 (BURST PHASE) and ⊘ LV1 (SC PHASE)/EN-69P board so that the beam spot of the burst signal is overlapped with the 75% scale on the vectroscope.




RV6 (R BAL)
RV7 (G BAL)
RV8 (B BAL)
RV3 (VBS SET UP)
E1
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV17 (VTRR-Y)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
RV13 (ZEBRA)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ←→ OFF
OFF ←→ ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV21 (Q/U BAL)
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV19 (I/V BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD(COMPONENTSIDE)

- Note

After this adjustment is completed, set the OUTPUT/DCC switche (side panel) at "CAM/OFF".

Step 31. VTR Y Adjustment

- Note

Be sure to connect the CA-50P/3AP camera adaptor with the BVP-50P camera.

- Setting

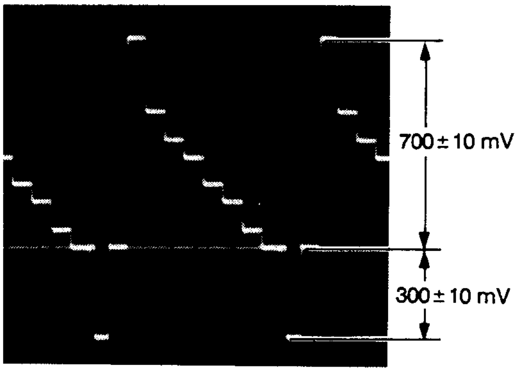
Equipment : Osilloscope, Waveform monitor To be extended : EN-69P board	Trigger : HD (TP34/extension board)

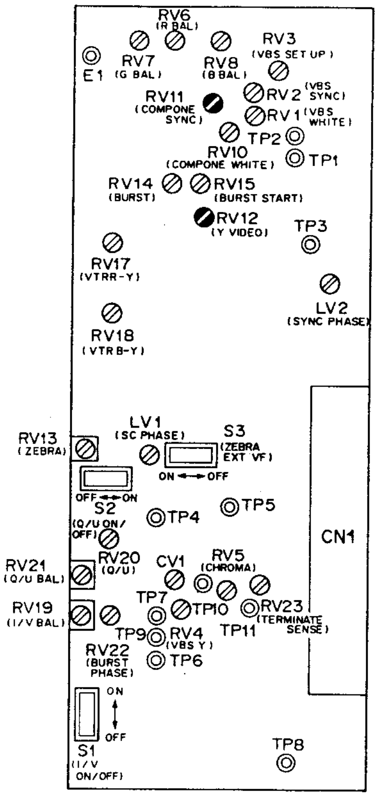
- Preparation

OUTPUT/DCC switch (side panel) --> "BARS/OFF"

- Adjustment procedures

1. Adjust ⊘ RV12 (Y VIDEO)/EN-69P board so that the white level is 700±10 mV.
2. Adjust ⊘ RV11 (COMPONE SYNC)/EN-69P board so that the sync level is 300±10 mV.





RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV17 (VTRR-Y)
LV2 (SYNC PHASE)
RV18 (VTRB-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
RV13 (ZEBRA)
ON ◄► OFF
OFF ◄► ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV21 (Q/U BAL)
RV20 (Q/U)
CV1
RV5 (CHROMA)
TP7
RV19 (I/V BAL)
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD(COMPONENT SIDE)

- Note

After this adjustment is completed, set the OUTPUT/DCC switch (side panel) at "CAM/OFF".

Step 32. VTR R-Y Gain Adjustment

- Note

Be sure to connect the CA-50P/3AP camera adaptor with the BVP-50P camera.

- Setting

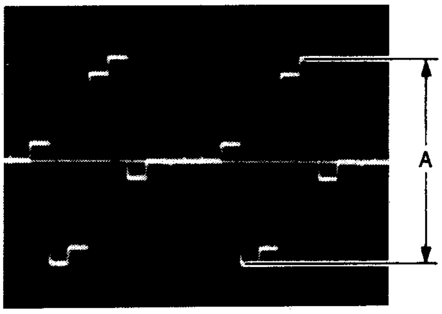
Equipment : Osilloscope To be extended : EN-69P board	Trigger : HD (TP34/extension board)

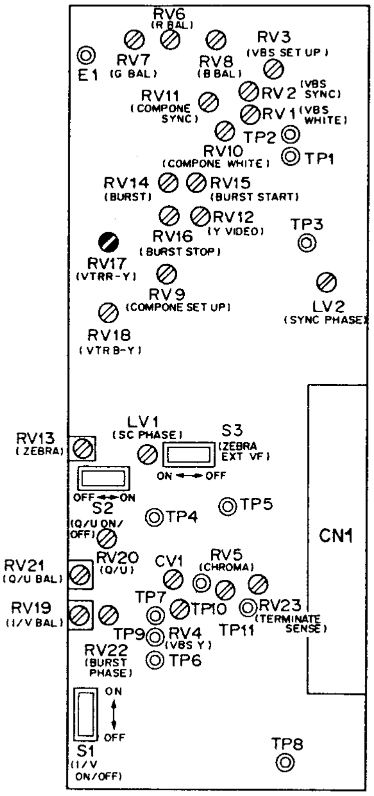
- Preparation

OUTPUT/DCC switch (side panel) --> "BARS/OFF"

- Adjustment procedures

Test point : TP19/extension board
Adj. point : ● RV17/EN-69P board
Spec. : A = 700 ± 10 mVp-p




RV6 (R BAL)
RV7 (G BAL)
RV8 (B BAL)
RV3 (VBS SET UP)
E1
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV16 (BURST STOP)
RV17 (VTRR-Y)
RV9 (COMPONE SET UP)
LV2 (SYNC PHASE)
RV18 (VTR B-Y)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ←→ OFF
RV13 (ZEBRA)
OFF ←→ ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV21 (Q/U BAL)
RV20 (Q/U)
CV1
RV5 (CHROMA)
RV19 (I/V BAL)
TP7
TP10
RV23 (TERMINATE SENSE)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the OUTPUT/DCC switch at "CAM/OFF".

Step 33. VTR B-Y Gain Adjustment

- Note

Be sure to connect the CA-50P/3AP camera adaptor with BVP-50P camera.

- Setting

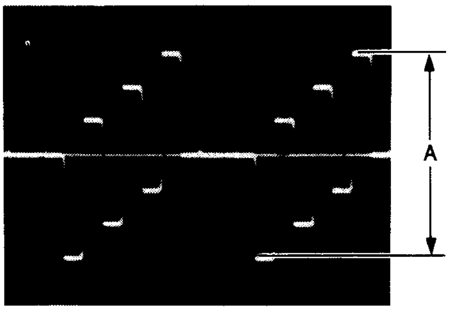
Equipment : Osilloscope To be extended : EN-69P board	Trigger : HD (TP34/extension board)

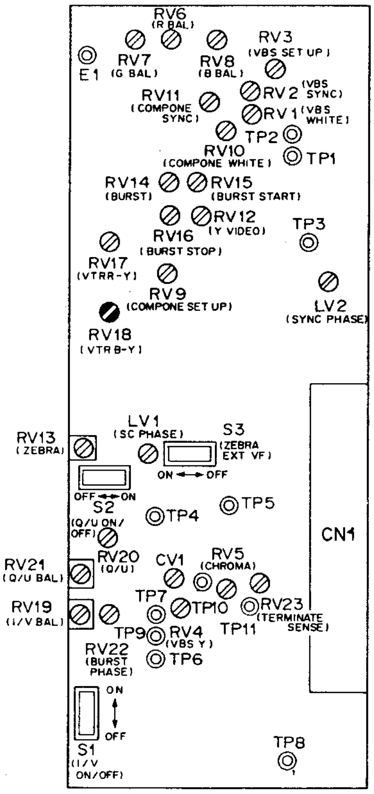
- Preparation

OUTPUT/DCC switch (side panel) --> "BARS/OFF"

- Adjustment procedures

Test point : TP18/extension board
Adj. point : ● RV18/EN-69P board
Spec. : A = 700±10 mVp-p




RV6
(R BAL)
RV3
(VBS SET UP)
E1
RV7
(G BAL)
RV8
(B BAL)
RV11
(COMPONE SYNC)
RV2
(VBS SYNC)
RV1
(VBS WHITE)
TP2
RV10
(COMPONE WHITE)
TP1
RV14
(BURST)
RV15
(BURST START)
RV12
(Y VIDEO)
TP3
RV16
(BURST STOP)
RV17
(VTRR-Y)
RV9
(COMPONE SET UP)
LV2
(SYNC PHASE)
RV18
(VTR B-Y)
LV1
(SC PHASE)
S3
(ZEBRA EXT VF)
ON ◄► OFF
RV13
(ZEBRA)
OFF ◄► ON
S2
(Q/U ON/OFF)
TP4
TP5
CN1
RV21
(Q/U BAL)
RV20
(Q/U)
CV1
RV5
(CHROMA)
RV19
(I/V BAL)
TP7
TP10
RV23
(TERMINATE SENSE)
TP9
RV4
(VBS Y)
TP11
RV22
(BURST PHASE)
TP6
ON
OFF
S1
(I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the OUTPUT/DCC switch (side panel) at "CAM/OFF".

Step 34. Zebra Level Adjustment

- Setting

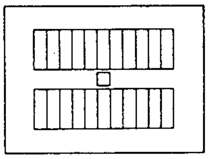
Object : Grayscale chart Equipment : Waveform monitor (WFM)	To be extended : EN-69P board

- Preparation

ENC/RGB switch (side panel) --> "ENC"
TALLY/ZEBRA ON/OFF switch (viewfinder) --> "ZEBRA"

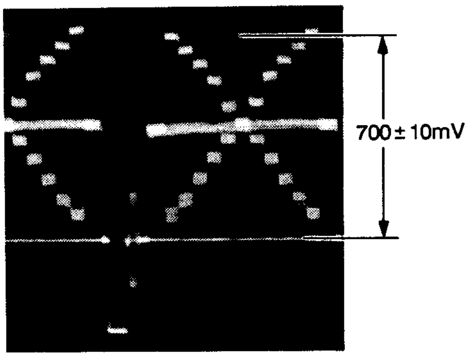
- Adjustment procedures

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor screen.



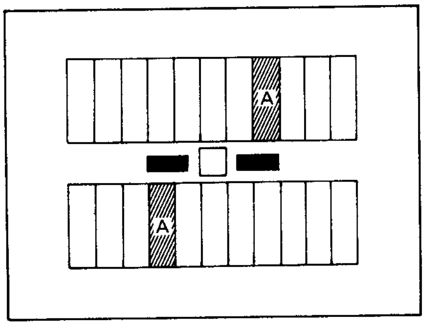
(monitor screen)

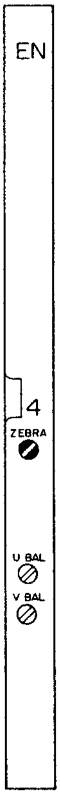
2. Adjust the iris control so that the white level at TEST OUT terminal is 700 ± 10 mV.



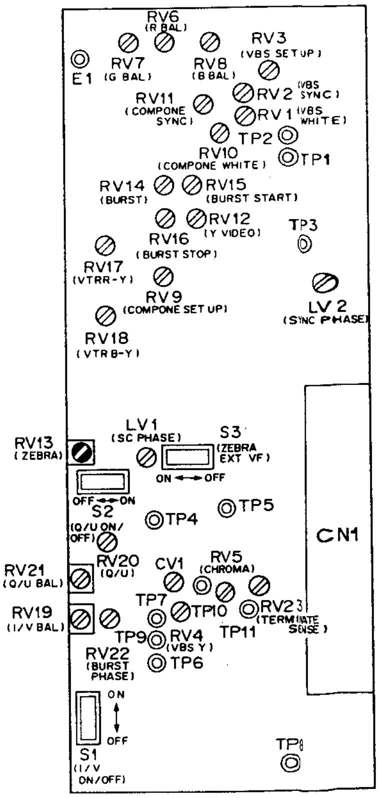
3. Adjust ⊘ RV13(ZEBRA)/EN-69P borad so that the striped pattern appears in the portion A of the VF screen as shown below.

VF Screen




EN
4
ZEBRA
U BAL
V BAL

EN-69P BOARD
(PANEL SIDE)


RV6 (R BAL)
RV3 (VBS SET UP)
E1
RV7 (G BAL)
RV8 (B BAL)
RV11 (COMPONE SYNC)
RV2 (VBS SYNC)
RV1 (VBS WHITE)
TP2
RV10 (COMPONE WHITE)
TP1
RV14 (BURST)
RV15 (BURST START)
RV12 (Y VIDEO)
TP3
RV16 (BURST STOP)
RV17 (VTRR-Y)
RV9 (COMPONE SET UP)
LV 2 (SYNC PHASE)
RV18 (VTR B-Y)
RV13 (ZEBRA)
LV1 (SC PHASE)
S3 (ZEBRA EXT VF)
ON ←→ OFF
OFF ←→ ON
S2 (Q/U ON/OFF)
TP4
TP5
CN1
RV21 (Q/U BAL)
RV20 (Q/U)
CV1
RV5 (CHROMA)
TP7
TP10
RV23 (TERMINATE SENSE)
RV19 (I/V BAL)
TP9
RV4 (VBS Y)
TP11
RV22 (BURST PHASE)
TP6
ON
OFF
S1 (I/V ON/OFF)
TP8

EN-69/69P BOARD (COMPONENT SIDE)

Step 35. White Clip Adjustment

- Setting

Object : White window chart
Equipment : Oscilloscope
To be extended : IE-21P board
Triigger : TP10/extension board

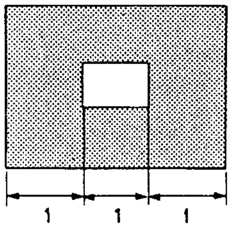
- Preparation

ENC/RGB switch (side panel) --> "ENC"
GAIN switch (side panel) --> "9"
S1 DTL /IE-21P board --> "ON"

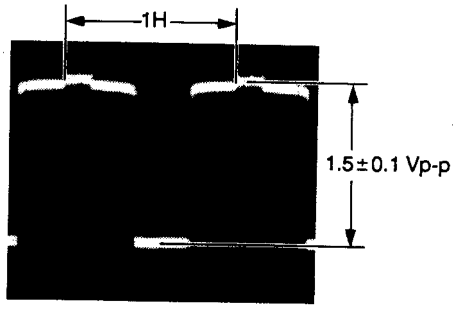
- Adjustment procedures

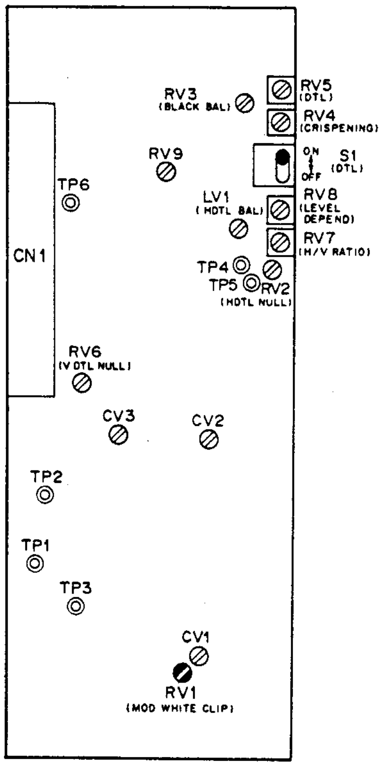
1. Adjust the zoom control and shoot the white window chart as shown below.

Monitor screen



2. Open the lens iris slowly and Adjust ●RV1 (MOD WHITE CLIP)/IE-21P board so that the waveform at TP6/extension board clips at 1.5±0.1 Vp-p.




RV3 (BLACK BAL)
RV5 (DTL)
RV4 (CRISPENING)
RV9
ON OFF S1 (DTL)
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)

IE-21P BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the GAIN selector (side panel) to "0".

Step 36. V DTL Null Adjustment

- Setting

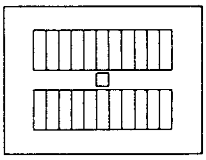
Object : Grayscale chart Equipment : Oscilloscope, Waveform monitor	To be extended : IE-21P board

- Preparation

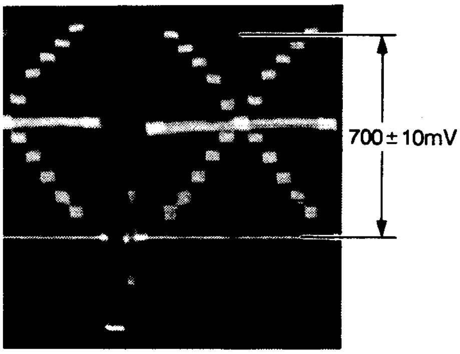
ENC/RGB switch (side panel) --> "ENC"
S1 DTL / IE-21P board --> "ON"

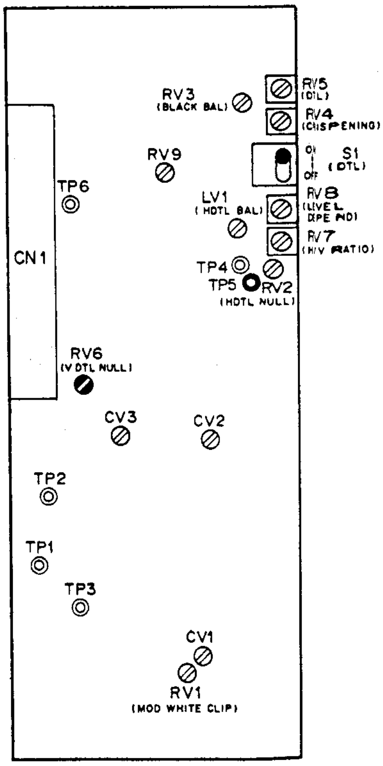
- Adjustment procedures

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the white level at TEST OUT terminal is 700 ± 10 mV.



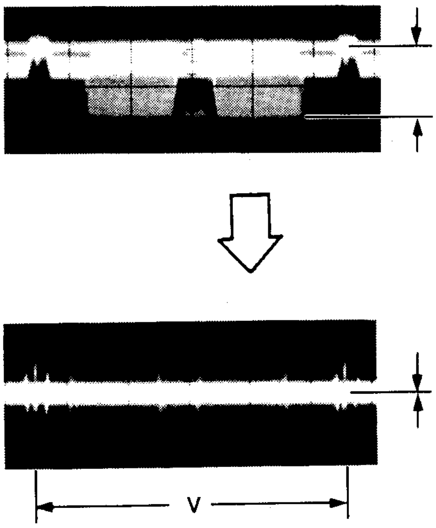
(monitor screen)




RV3 (BLACK BAL)
RV5 (DTL)
RV4 (CRISPENING)
RV9
ON
OFF
S1 (DTL)
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)

IE-21P BOARD (COMPONENT SIDE)

3. Test point : TP5/extension board
   Adj. point : ⊘ RV6/IE-21P board



Step 37. 1H, 2H DELAY Signal Phase Adjustment

- Setting

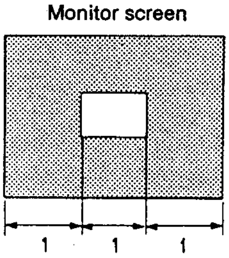
Object :	White window chart	To be extended :	IE-21P board
Equipment :	Oscilloscope	Trigger :	TP10/extension board

- Preparation

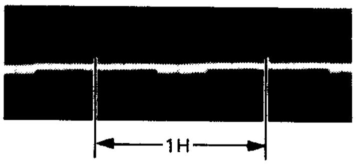
ENC/RGB switch (side panel) --> "ENC"
S1 [DTL] /IE-21P board --> "ON"

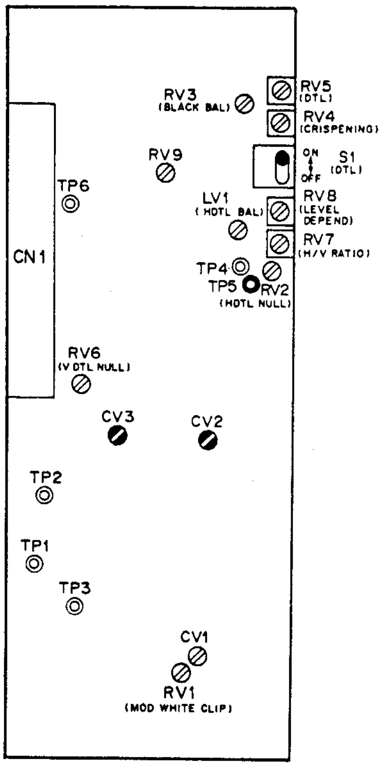
- Adjustment procedures

1. Adjust the zoom control and shoot the white window chart as shown below.


Monitor screen
1
1
1

2. Adjust the iris control so that the white level at TEST OUT terminal is 700 ± 10 mV.
3. Test point : TP5(GND:E1)/IE-21P board
   Adj. point : ⊘ CV2 ⊘ CV3/IE-21P board
   Adjust : Adjust so that the detail signal is not added to the waveform.




RV3
(BLACK BAL)
RV5
(DTL)
RV4
(CRISPENING)
RV9
ON
S1
(DTL)
OFF
TP6
LV1
(HDTL BAL)
RV8
(LEVEL DEPEND)
RV7
(H/V RATIO)
CN1
TP4
TP5
RV2
(HDTL NULL)
RV6
(V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1
(MOD WHITE CLIP)

IE-21P BOARD (COMPONENT SIDE)

Step 38. H DTL Adjustment

- Setting

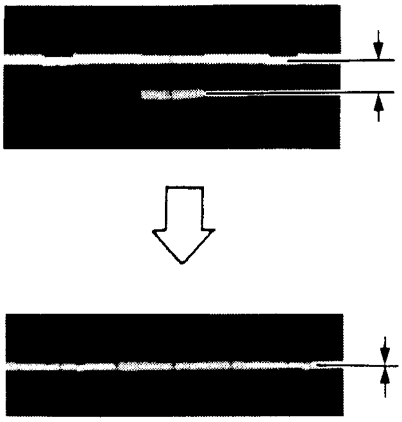
Object :	White window chart	To be extended :	IE-21P board
Equipment :	Oscilloscope, Waveform monitor	Trigger :	TP10/extension board

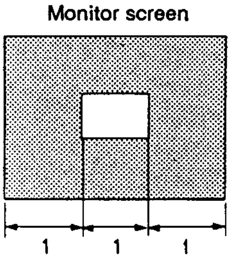
- Preparation

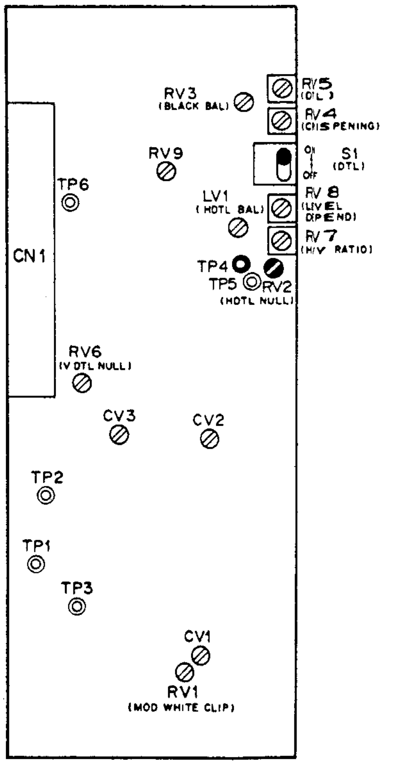
ENC./RGB switch (side panel)	--> "ENC"
S1 DTL /IE-21P board	--> "ON"

- Adjustment procedures

1. Adjust the zoom control and shoot the white window chart as shown right.
2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV.
3. Test point : TP4/IE-21P board
   Adj. point : ⊘ RV2/IE-21P board




Monitor screen
1
1
1

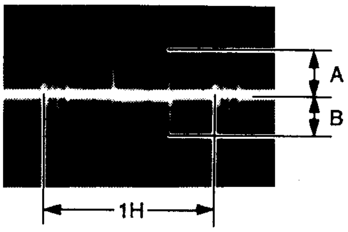

RV5 (DTL)
RV4 (CRISPENING)
RV3 (BLACK BAL)
RV9
ON
OFF
S1 (DTL)
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)

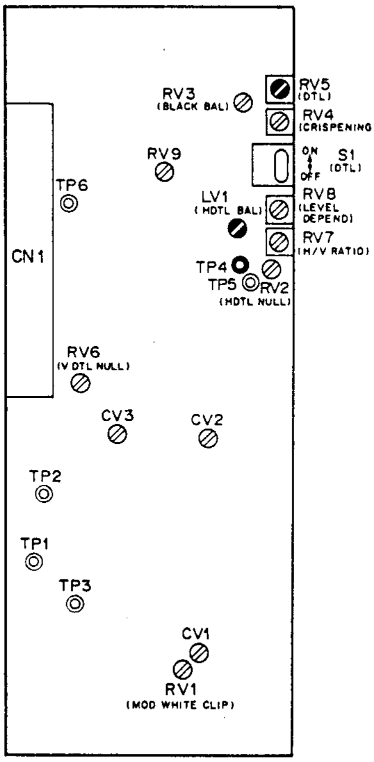
IE-21P BOARD (COMPONENT SIDE)

(Proceed to next page)

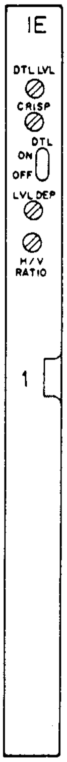
4. ⊘RV5 DTL /IE-21P board --> fully clockwise ↻

5. Test point : TP4/IE-21P board
   Adj. point : ⊘ LV1/IE-21P board
   Spec. : A = B




RV3
(BLACK BAL)
RV5
(DTL)
RV4
(CRISPENING)
RV9
ON
OFF
S1
(DTL)
TP6
LV1
(HDTL BAL)
RV8
(LEVEL DEPEND)
RV7
(H/V RATIO)
CN1
TP4
TP5
RV2
(HDTL NULL)
RV6
(V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1
(MOD WHITE CLIP)

IE-21P BOARD (COMPONENT SIDE)


IE
DTL LVL
CRISP
DTL
ON
OFF
LVL DEP
H/V
RATIO
1

IE-21P BOARD
(PANEL SIDE)

- **Note**

After this adjustment is completed, be sure to carry out step 39. Black Balance Adjustment.

Step 39. Black Balance Adjustment

- Setting

Object	:	Grayscale chart	To be extended	:	IE-21P board
Equipment	:	Oscilloscope, Waveform monitor	Trigger	:	TP10/extension board

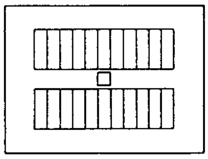
- Preparation

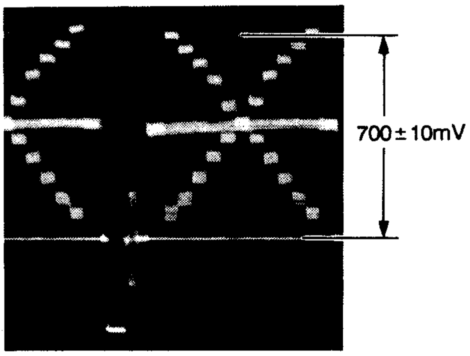
S1 DTL ON/OFF /IE-21P board --> "ON"
⊘ RV5 DTL /IE-21P board --> fully clockwise ↻
⊘ RV4 CRISP /IE-21P board --> fully counterclockwise ↺
⊘ RV8 LEV DEP /IE-21P board --> fully counterclockwise ↺
⊘ RV7 H/V RATIO /IE-21P board --> mechanical center

- Adjustment procedures

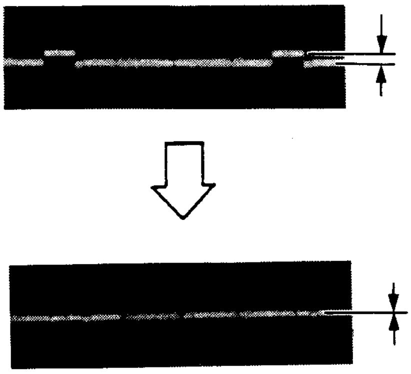
1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

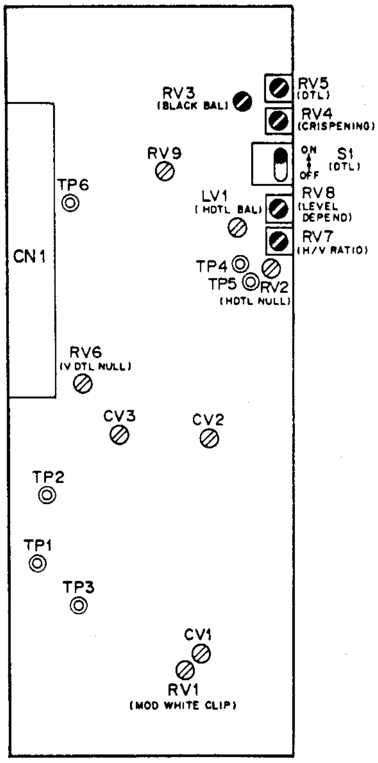
2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV.

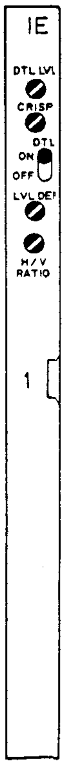

(monitor screen)



3. Test point : TP6/IE-21P board
   Adj. point : ⊘ RV3/IE-21P board




RV3
(BLACK BAL)
RV5
(DTL)
RV4
(CRISPENING)
RV9
ON
OFF
S1
(DTL)
TP6
LV1
(HDTL BAL)
RV8
(LEVEL DEPEND)
RV7
(H/V RATIO)
CN1
TP4
TP5
RV2
(HDTL NULL)
RV6
(V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1
(MOD WHITE CLIP)
IE-21P BOARD(COMPONENT SIDE)


IE
DTL LVL
CRISP
DTL
ON
OFF
LVL DEP
H/V RATIO
1
IE-21P BOARD
(PANEL SIDE)

- Note

After this adjustment is completed, be sure to carry out step 40. Level Dependent Adjustment.

Step 40. Level Dependent Adjustment

- Setting

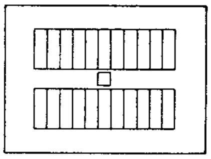
Object : Grayscale chart	Equipment : Waveform monitor (WFM)

- Preparation

S1 DTL ON/OFF /IE-21P board --> "ON"
ENC/RGB switch (side panel) --> "RGB"
G/OFF switch (side panel) --> "G"
R/OFF/B switch (side panel) --> "OFF"

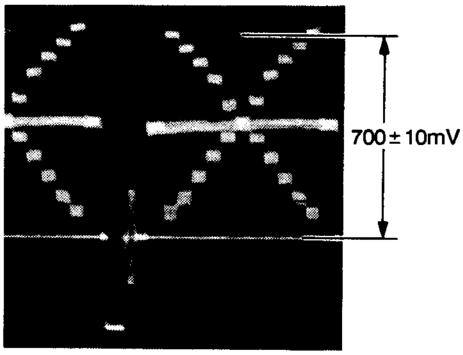
- Adjustment procedures

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

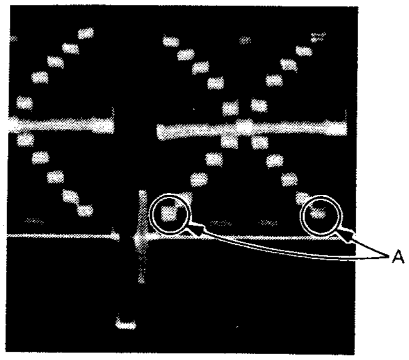


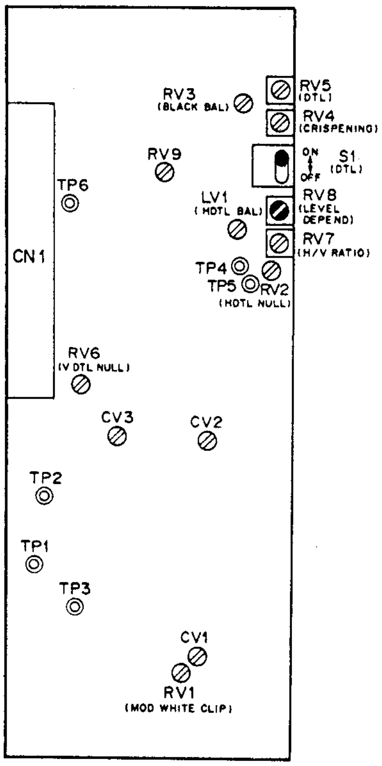
(monitor screen)

2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV..

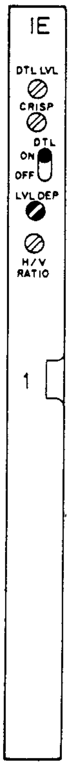


3. Test point : TEST OUT terminal
   Adj. point : ⊘ RV8 LEV DEP /IE-21P board
   Spec. : The detail signal is not added to the portion A of the waveform at TEST OUT terminal.




RV3
(BLACK BAL)
RV5
(DTL)
RV4
(CRISPENING)
RV9
ON
OFF
S1
(DTL)
TP6
LV1
(HDTL BAL)
RV8
(LEVEL DEPEND)
RV7
(H/V RATIO)
CN1
TP4
TP5
RV2
(HDTL NULL)
RV6
(V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1
(MOD WHITE CLIP)

IE-21P BOARD (COMPONENT SIDE)


IE
DTL LVL
CRISP
DTL
ON
OFF
LVL DEP
H/V RATIO
1

IE-21P BOARD (PANEL SIDE)

4. ENC/RGB switch (side panel) --> "ENC"

- Note

After this adjustment is completed, be sure to carry out step 41. H/V RATIO Adjustment.

Step 41. H/V RATIO Adjustment

- Setting

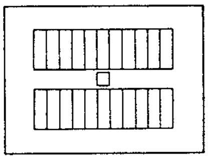
Object : Grayscale chart	Equipment : Waveform monitor (WFM)

- Preparation

S1 DTL ON/OFF /IE-21P board --> "ON"
⊘RV5 DTL /IE-21P board --> fully clockwise ↻

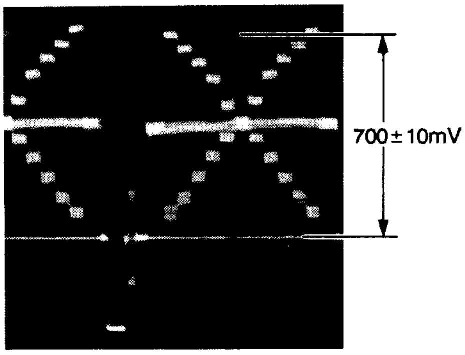
- Adjustment procedures

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



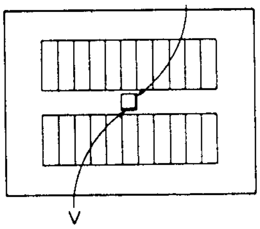
(monitor screen)

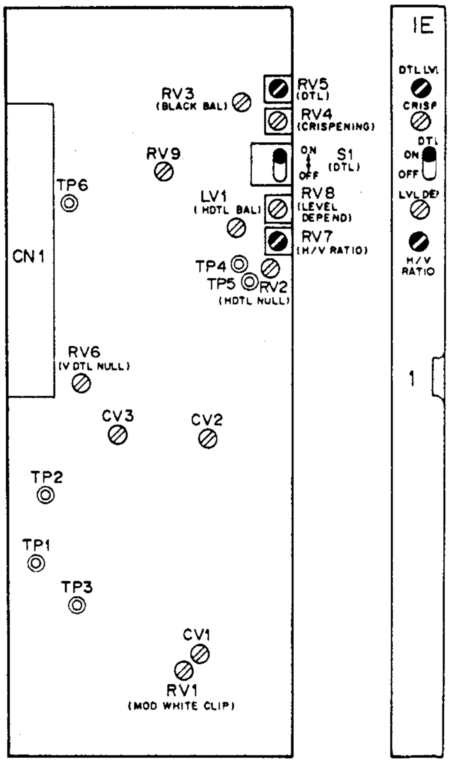
2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV.



3. Adjust ⊘ RV7(H/V RATIO)/IE-21P board so that the H and V detail amounts to be added are equivalent.

Monitor screen




RV3 (BLACK BAL)
RV5 (DTL)
RV4 (CRISPENING)
RV9
S1 (DTL)
ON
OFF
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)
IE
DTL LVL
CRISP
DTL
ON
OFF
LVL DEP
H/V RATIO
1

IE-21P BOARD (COMPONENT SIDE) IE-21P30A RD (PANEL SIDE)

- Note

After this adjustment is completed, be sure to carry out step 42. Detail Level Adjustment.

Step 42. Detail Level Adjustment

- Setting

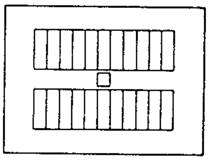
Object : Grayscale chart	Equipment : Waveform monitor (WFM)

- Preparation

S1 DTL ON/OFF /IE-21P board --> "ON"

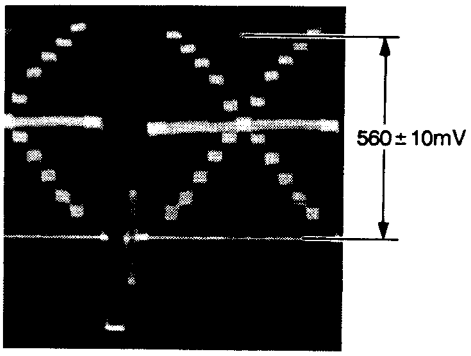
- Adjustment procedures

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor screen.

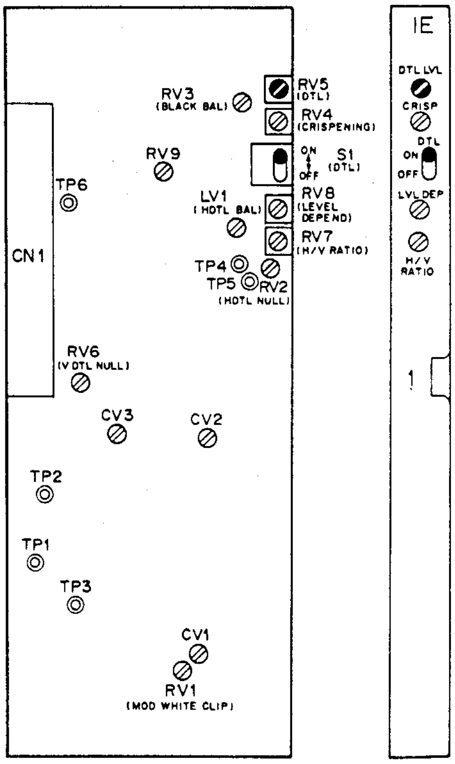


(monitor screen)

2. Adjust the iris control so that the white level at TEST OUT terminal is 560±10 mV.



3. Test point : Monitor Screen
   Adjust : Set the detail level according to the users' request by adjusting ⊘ RV5 DTL /IE-21P board.


RV3 (BLACK BAL)
RV5 (DTL)
RV4 (CRISPENING)
RV9
ON OFF S1 (DTL)
TP6
LV1 (HDTL BAL)
RV8 (LEVEL DEPEND)
RV7 (H/V RATIO)
CN1
TP4
TP5
RV2 (HDTL NULL)
RV6 (V DTL NULL)
CV3
CV2
TP2
TP1
TP3
CV1
RV1 (MOD WHITE CLIP)
IE
DTL LVL
CRISP
DTL
ON
OFF
LVL DEP
H/V RATIO
1

IE-21P BOARD (COMPONENT SIDE)

IE-21P BOARD (PANEL SIDE)

Step 43. Resolution Adjustment

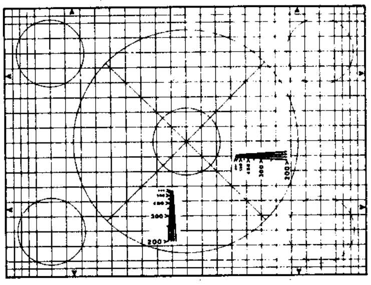
- Setting

Object :	Registration chart, Resolution chart	Equipment :	Waveform monitor

- Adjustment procedures

1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor screen.

Monitor screen



2. Adjust the iris control so that the white level at TEST OUT terminal is 700±10 mV.

3. - S1 DTL /IE-21P board --> "OFF"
   - ENC/RGB switch (side panel) --> "RGB"
   - G/OFF switch (side panel) --> "OFF"
   - R/OFF/B switch (side panel) --> "R"
   - S1 (G/-G)/RG-20P board --> "–G"

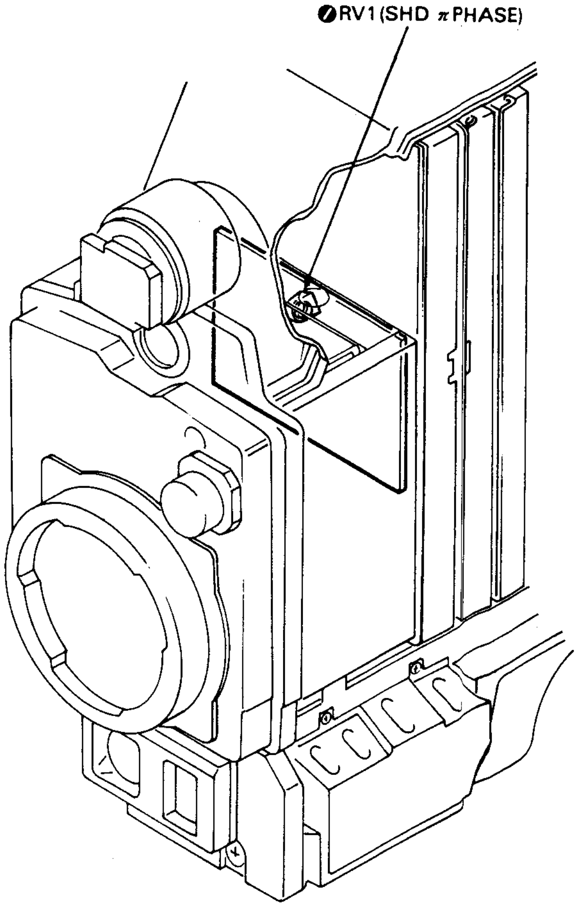
4. Adjust ⊘ RV1(SHD π PHASE)/TG-30P board so that the picture error of R-ch and G-ch is minimized.

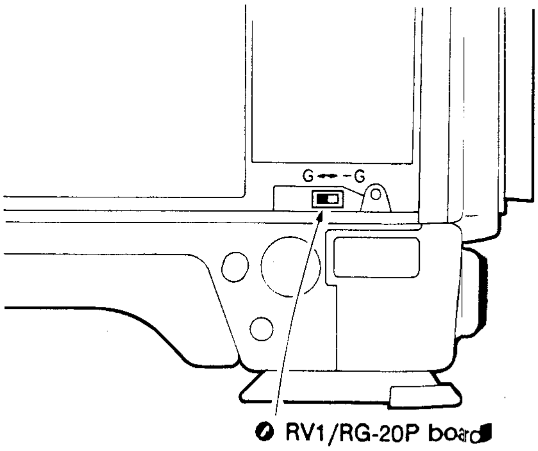
5. - ENC/RGB switch (side panel) --> "ENC"
   - S1 DTL /IE-21P board --> "ON"
   - Object --> Resolution chart
   - Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor screen.

6. Make sure that the resolution of more than 550 TV lines can be seen on the monitor screen.

Note: After this adjustment is completed, set the switches as follows:

- ENC/RGB switch (side panel) --> "ENC"
- S1 (G/-G)/RG-20P board --> "G"





Step 44. Power Save Adjustment

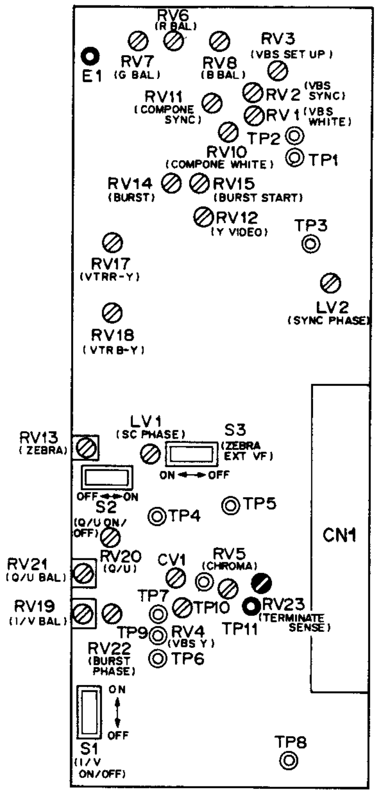
- Setting

Equipment : Digital Voltmeter	To be extended : EN-69P board

- Adjustment procedures

Test point : TP11 (GND:E1)/EN-69P board
Adj. point : ⊘ RV23/EN-69P board
Spec. : –0.45±0.1 Vdc

Note : Confirm that the waveform at TP8/extension board is fed when the ENC/RGB selector (side panel) is set to "ENC" and it is not fed when the selector is set to "RGB".


RV6
(R BAL)
RV3
(VBS SET UP)
E1
RV7
(G BAL)
RV8
(B BAL)
RV2 (VBS SYNC)
RV11
(COMPONE SYNC)
RV1 (VBS WHITE)
TP2
RV10
(COMPONE WHITE)
TP1
RV14
(BURST)
RV15
(BURST START)
RV12
(Y VIDEO)
TP3
RV17
(VTRR-Y)
LV2
(SYNC PHASE)
RV18
(VTR B-Y)
LV1
(SC PHASE)
S3
(ZEBRA EXT VF)
RV13
(ZEBRA)
ON ↔ OFF
OFF ↔ ON
S2
(Q/U ON/OFF)
TP4
TP5
CN1
RV20
(Q/U)
CV1
RV5
(CHROMA)
RV21
(Q/U BAL)
TP7
TP10
RV23
(TERMINATE SENSE)
RV19
(I/V BAL)
TP9
RV4
(VBS Y)
TP11
RV22
(BURST PHASE)
TP6
ON
OFF
S1
(I/V ON/OFF)
TP8

EN–69/69P BOARD (COMPONENT SIDE)

Step 45. Black Width Adjustment

- Setting

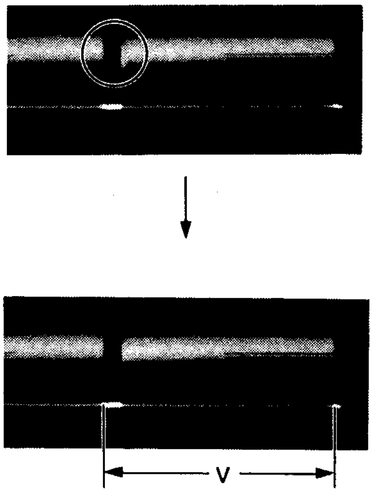
Equipment : Waveform monitor	To be extended : VA-37A board

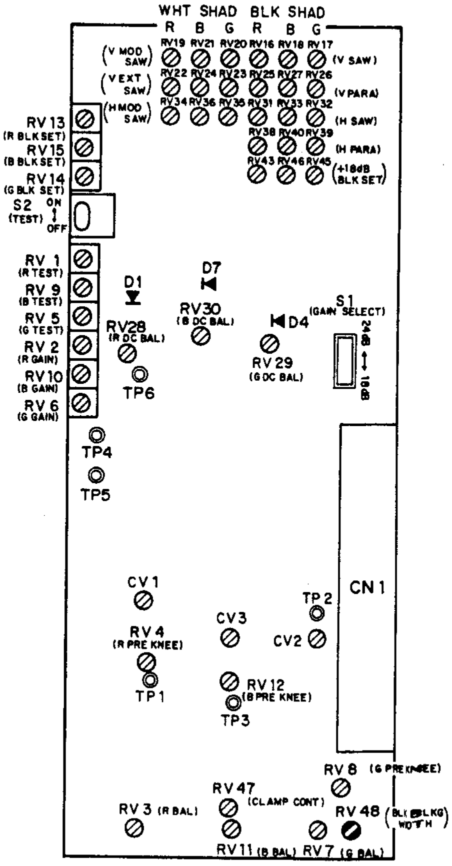
- Preparation

Lens iris --> Close "C"
ENC/RGB switch (side panel) --> "RGB"
G/OFF switch (side panel) --> "G"
R/OFF/B switch (side panel) --> "OFF"

- Adjustment procedures

Test point : TEST OUT terminal
Adjust : Turn ⊘ RV48 (BLK WIDTH)/VA-37A board from the right most position counterclockwise slowly untill the waveform is flat.




WHT SHAD
BLK SHAD
R
B
G
R
B
G
RV19
RV21
RV20
RV16
RV18
RV17
(V MOD SAW)
(V SAW)
RV22
RV24
RV23
RV25
RV27
RV26
(V EXT SAW)
(V PARA)
RV34
RV36
RV35
RV31
RV33
RV32
(H MOD SAW)
(H SAW)
RV38
RV40
RV39
(H PARA)
RV43
RV46
RV45
(+18dB BLK SET)
RV 13
(R BLK SET)
RV 15
(B BLK SET)
RV 14
(G BLK SET)
S2
(TEST)
ON
OFF
RV 1
(R TEST)
RV 9
(B TEST)
RV 5
(G TEST)
RV 2
(R GAIN)
RV 10
(B GAIN)
RV 6
(G GAIN)
D1
D7
RV30
(B DC BAL)
RV28
(R DC BAL)
TP6
D4
S1
(GAIN SELECT)
24dB
18dB
RV 29
(G DC BAL)
TP4
TP5
CV 1
TP 2
CN 1
CV3
RV 4
(R PRE KNEE)
CV2
TP1
RV 12
(B PRE KNEE)
TP3
RV 8
(G PRE KNEE)
RV 47
(CLAMP CONT)
RV 3
(R BAL)
RV 48
(BLK BLKG WIDTH)
RV11
(B BAL)
RV7
(G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the ENC/RGB switch (side panel) at "ENC".

Step 46. Clamp Control Adjustment

- Setting

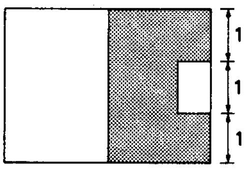
Object : White window chart	To be extended : VA-37A board

- Preparation

1. Pattern box
    - When the pattern box is PTB-220, set AUTO/MANU switch at "AUTO".
    - When the pattern box is PTB-500, insert the filter unit.
2. ENC/RGB switch (side panel) --> "ENC"

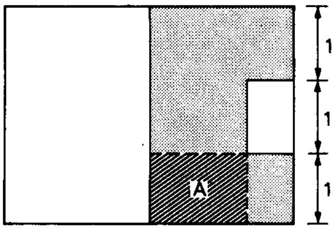
- Adjustment procedures

1. Adjust the zoom control and shoot the white widow chart as shown below.

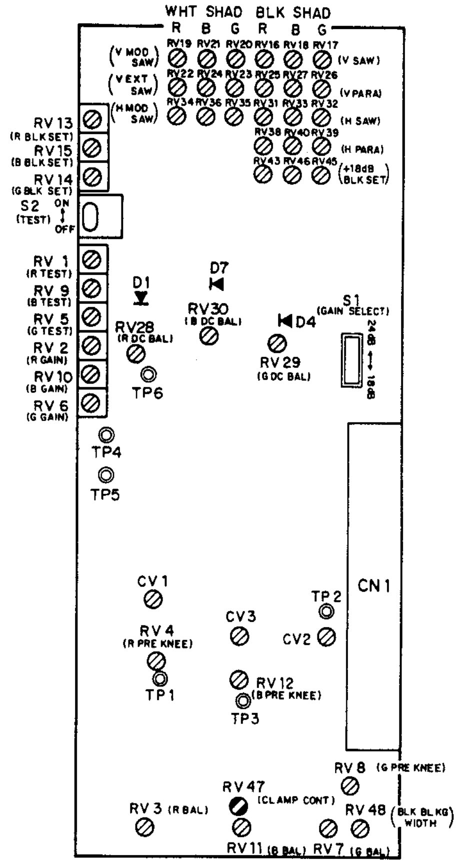


Monitor screen

2.
    - Set the iris control to F2.8.
    - GAIN selector (side panel) --> "18"
    - ● RV47 (CLAMP CONT)/VA-37A board --> fully clockwise ↻
3. When the portion A of the monitor is colored, turn ●RV47 (CLAMP SENSE)/VA-37A board counterclockwise slowly until it is not colored.



Monitor screen


WHT SHAD
BLK SHAD
R B G R B G
RV19 RV21 RV20 RV16 RV18 RV17
(V MOD SAW)
(V SAW)
RV22 RV24 RV23 RV25 RV27 RV26
(V EXT SAW)
(V PARA)
RV34 RV36 RV35 RV31 RV33 RV32
(H MOD SAW)
(H SAW)
RV38 RV40 RV39
(H PARA)
RV43 RV46 RV45
(+18dB BLK SET)
RV 13 (R BLK SET)
RV 15 (B BLK SET)
RV 14 (G BLK SET)
S2 (TEST) ON OFF
RV 1 (R TEST)
RV 9 (B TEST)
RV 5 (G TEST)
RV 2 (R GAIN)
RV 10 (B GAIN)
RV 6 (G GAIN)
D1
D7
RV30 (B DC BAL)
RV28 (R DC BAL)
D4
S1 (GAIN SELECT)
24dB 18dB
RV 29 (G DC BAL)
TP6
TP4
TP5
CV 1
TP 2
CN 1
CV3
RV 4 (R PRE KNEE)
CV2
RV 12 (B PRE KNEE)
TP 1
TP3
RV 8 (G PRE KNEE)
RV 47 (CLAMP CONT)
RV 3 (R BAL)
RV 48 (BLK BLKG WIDTH)
RV11 (B BAL)
RV7 (G BAL)

VA-37A BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, set the GAIN switch at "0".

Step 47. Auto Iris Adjustment

- Setting

Object : Grayscale chart	Equipment : Waveform monitor

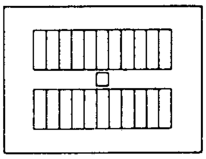
- Preparation

ENC/RGB switch (side panel) --> "ENC"
Iris AUTO/MANU switch (Lens) --> "AUTO"
OUTPUT/DCC switch (side panel) --> "CAM/ON"

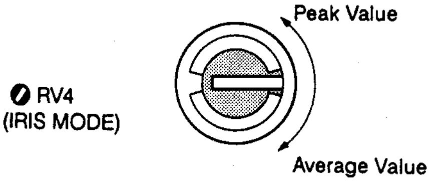
- Adjustment procedures

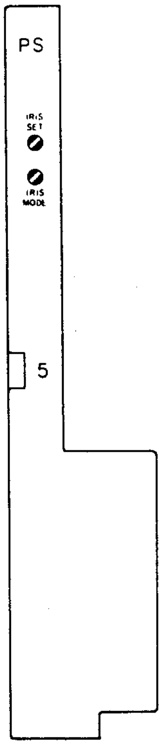
1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

Monitor screen



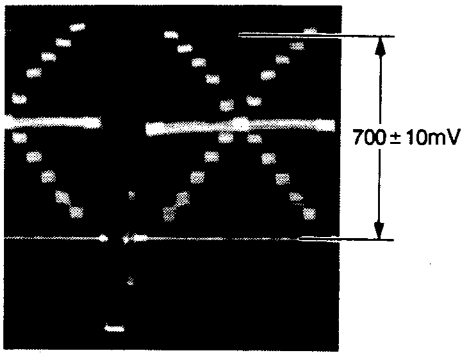
2. The iris control operation is controlled by mixing the peak level of the video signal with the average of it. That mixing ratio can be set by adjusting RV4 (IRIS MODE)/PS-163 board.
   Set the mode according to the users' request. Normally set it at the center.





PS-163 BOARD
(PANEL SIDE)

3. Adjust RV5 (IRIS SET)/PS-163 board so that the white level at TEST OUT terminal is 700 ± 10 mV.



- Note

After this adjustment is completed, set the iris control AUTO/MANU switch (Lens) at "MANU" and OUTPUT/DCC switch (side panel) at "CAM/OFF".

Step 48. LOW VIDEO Adjustment

- Setting

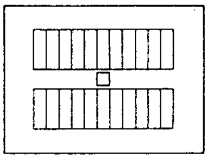
Object : Grayscale chart	Equipment : Waveform monitor

- Preparation

ENC/RGB switch (side panel) --> "ENC"

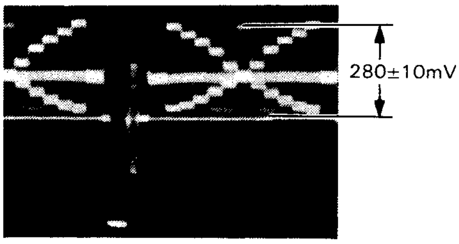
- Adjustment procedures

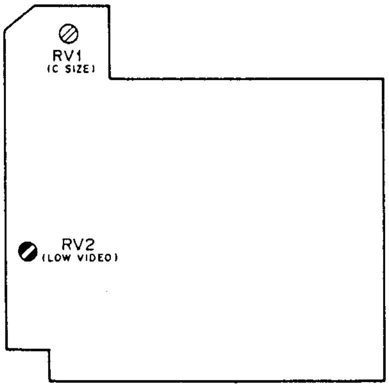
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor



(monitor screen)

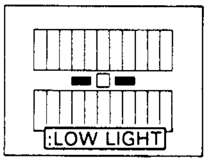
2. Adjust the iris control so that the white level at TEST OUT terminal is 280±10 mV.





AT-52 BOARD (SOLDERING SIDE)

3. Turn ⊘RV2 (LOW VIDEO)/AT-52 board from the leftmost position clockwise slowly until the "LOW LIGHT" is displayed on the VF screen.



Step 49. Character Size Adjustment

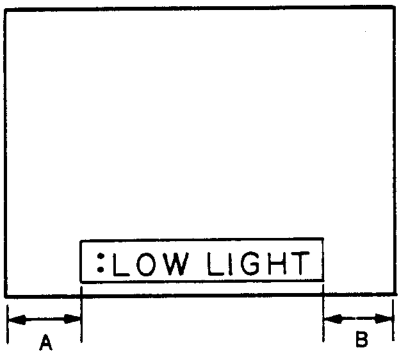
- Preparation

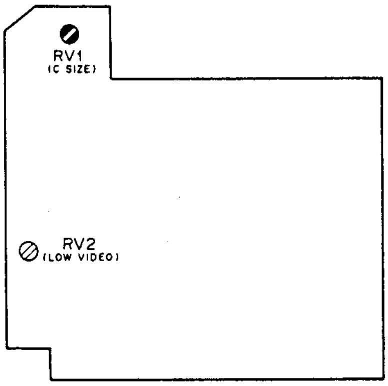
OUTPUT/DCC switch (side panel) --> "CAM/OFF"
ENC/RGB switch (side panel) --> "ENC"
Lend iris --> Close "C"

- Adjustment procedures

Test point : Viewfinder screen
Adj. point : ⊘ RV1 (CHR SIZE)/AT-52 board
Spec. : A = B

VF Screen


:LOW LIGHT
A
B


RV1
(C SIZE)
RV2
(LOW VIDEO)

AT-52 BOARD (SOLDERING SIDE)

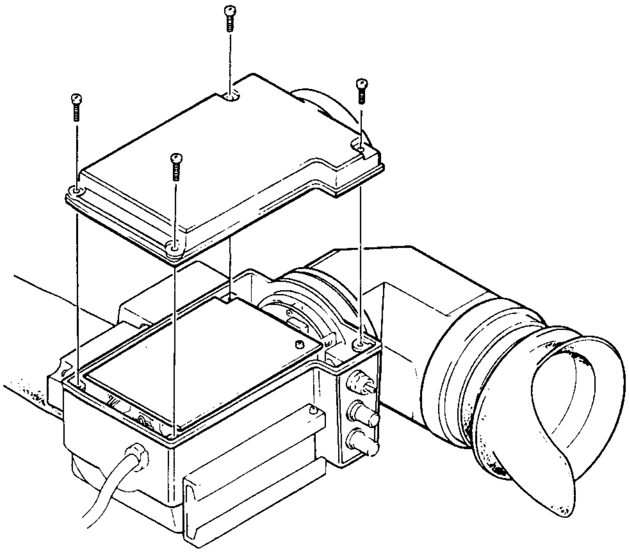
Step 50. Preparation for Viewfinder System Adjustment

- Note

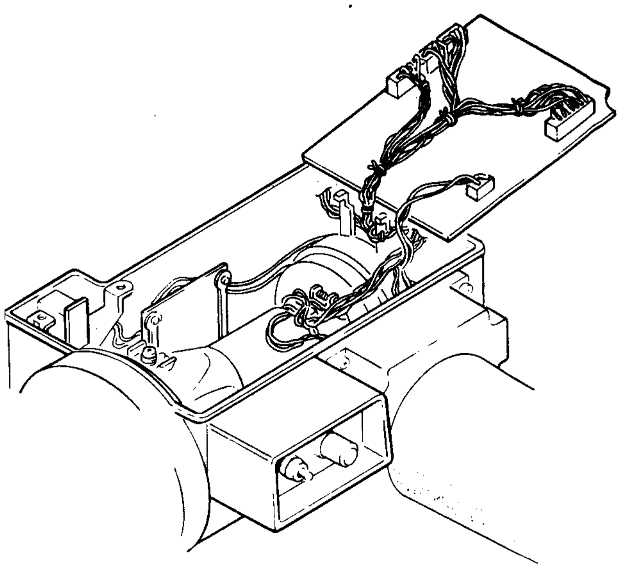
Be sure to adjust the camera completely, or the following adjustments will become invalid.

- Preparation

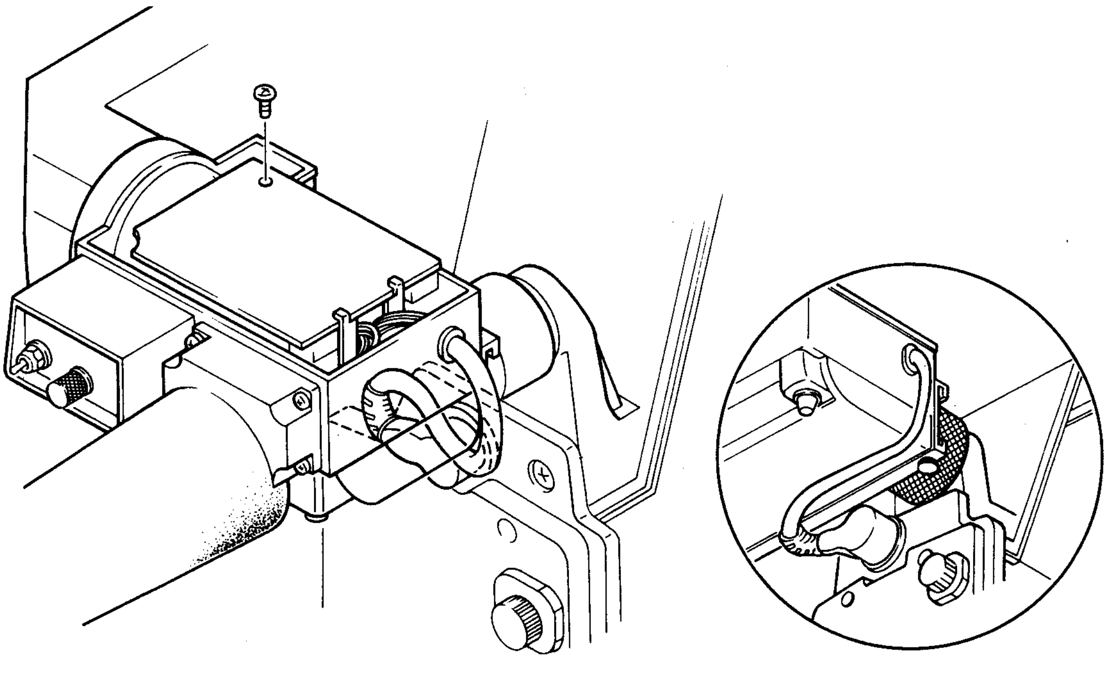
1. Set the power switch of AC Adaptor (AC-500CE or CMA-8CE) to "OFF".
2. Remove the viewfinder from the camera and remove the VF cover.



3. Install the viewfinder to be turned upside shown on the camera.
4. Turn the component side of VF-26 boardupwards for adjustments as shown below.



5. Set the power switch of AC adaptor (AC-500CE or CMA-8CE) to "ON".



Step 51. Vertical Hold Adjustment

- Setting

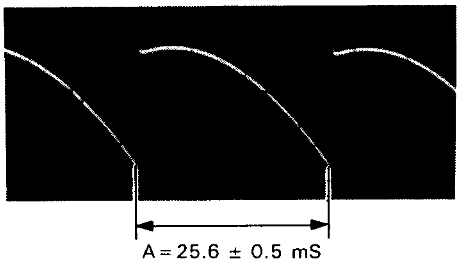
Equipment :	Oscilloscope

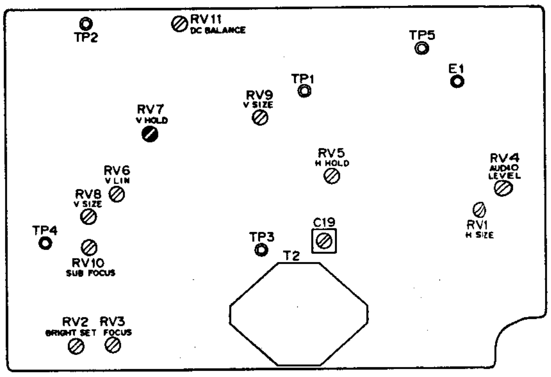
- Preparation

- Pull the EN-69P board out of the camera.
- Set⊘ RV9 (V SIZE)/VF-26 board to the mechanical center unles it is marked.

- Adjustment procedures

Test point : TP4 (GND:E1)/VF-26 board
Adj. point : ⊘RV7 (V HOLD)/VF-26 board
Spec. : A = 25.6±0.5 mS




TP2
RV11
DC BALANCE
TP5
E1
TP1
RV9
V SIZE
RV7
V HOLD
RV5
H HOLD
RV4
AUDIO LEVEL
RV6
V LIN
RV8
V SIZE
RV1
H SIZE
C19
TP4
TP3
T2
RV10
SUB FOCUS
RV2
BRIGHT SET
RV3
FOCUS

VF-26 BOARD (COMPONENT SIDE)

- Note

After this adjustment is completed, insert the EN-69P board into the camera.

Step 52. Flyback Pulse Width Adjustment

- Note

Perform this adjustment only when the T2 (FLYBACK)/VF-26 board is replaced.

- Setting

Equipment : Osilloscope

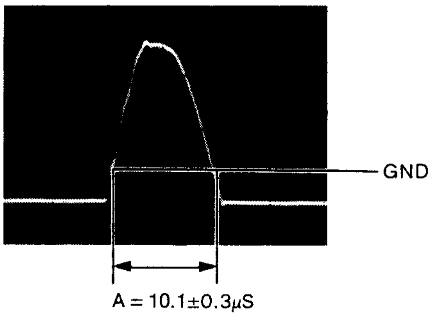
- Preparation

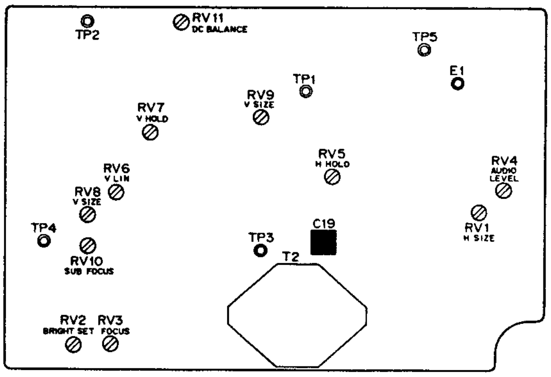
BRIGHT control (viewfinder) --> fully counterclockwise ↺
CONTR control (viewfinder) --> fully counterclockwise ↺

- Adjustment procedures

Test point : TP3 (GND:E1)/VF-26 board
Spec : A = 10.1±0.3 μs

When the flyback pulse width is out of the specification, replace C19/VF-26 board with a capacitor listed in the following table so that the pulse width meets the specification.




TP2
RV11
DC BALANCE
TP5
E1
TP1
RV9
V SIZE
RV7
V HOLD
RV5
H HOLD
RV4
AUDIO
LEVEL
RV6
V LIN
RV8
V SIZE
TP4
RV10
SUB FOCUS
TP3
C19
T2
RV1
H SIZE
RV2
BRIGHT SET
RV3
FOCUS

VF-26 BOARD (COMPONENT SIDE)

C19	1-136-306-11	0.0039 μF
	1-136-307-11	0.0043 μF
	1-136-287-11	0.0047 μF
	1-136-288-11	0.0051 μF
	1-136-289-11	0.0056 μF
	1-136-290-11	0.0062 μF
	1-136-291-11	0.0068 μF
	1-136-292-11	0.0075 μF
	1-136-293-11	0.0082 μF

Step 53. Horizontal Hold Adjustment

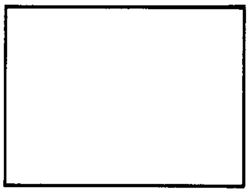
- Setting

Object : White window chart Equipment : Oscilloscope, Waveform monitor	Trigger : CH2/oscilloscope

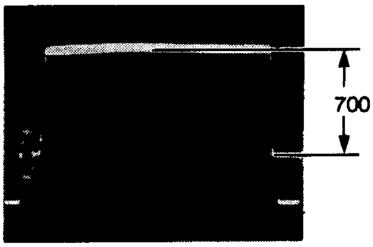
- Preparation

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor screen.

monitor screen

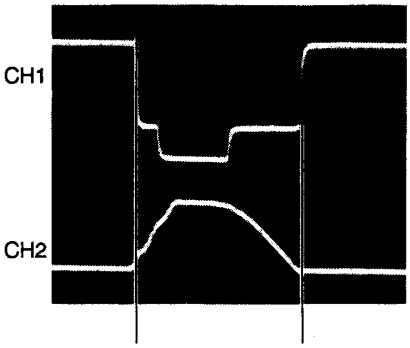


2. Adjust the iris control so that the white level at TEST OUT terminal is 700 ± 10 mV.



- Adjustment procedures

Test point : CH1 TP1(GND:E1)/VF-26 board
CH2 TP3(GND:E1)/VF-26 board
Adj. point : ⊘ RV5 (H HOLD)/VF-26 board
Spec. :



Adjust so that the lower phase corresponds with the upper.

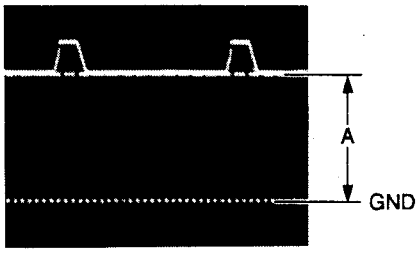
Step 54. DC Balance Adjustment

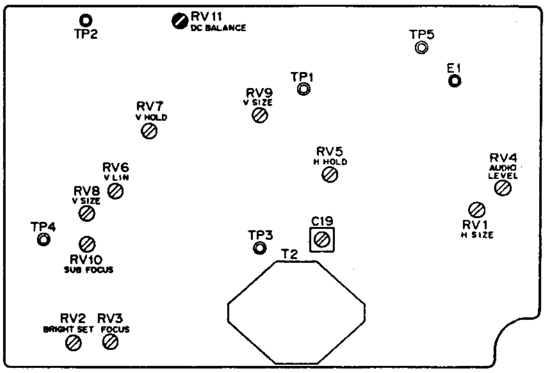
- Setting

Equipment : Oscilloscope (DC mode)	Lens iris : Close "C"

- Adjustment procedures

Test point : TP2 (GND:E1)/VF-26 board
Adj. point : ⊘ RV11 (DC BALANCE)/VF-26 board
Spec. : A = 47±2 Vdc




TP2
RV11
DC BALANCE
TP5
E1
TP1
RV9
V SIZE
RV7
V HOLD
RV5
H HOLD
RV4
AUDIO LEVEL
RV6
V LIN
RV8
V SIZE
RV1
H SIZE
TP4
C19
TP3
T2
RV10
SUB FOCUS
RV2
BRIGHT SET
RV3
FOCUS

VF-26 BOARD (COMPONENT SIDE)

Step 55. BRIGHT SET Adjustment

- Setting

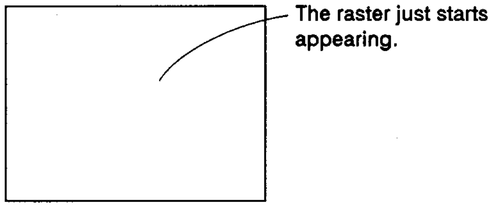
Lens iris : Close "C"

- Preparation

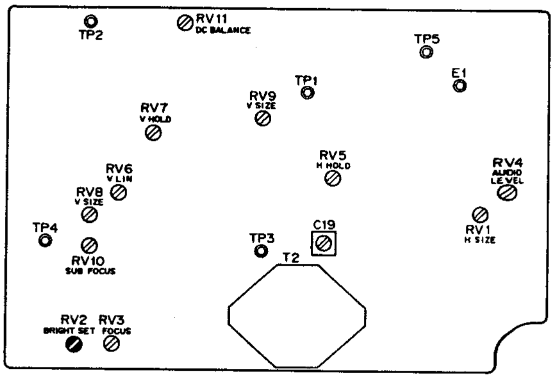
BRIGHT control (viewfinder) --> mechanical center
CONTR control (viewfinder) --> fully counterclockwise ↺

- Adjustment procedures

Set ⊘ RV2 (BRIGHT SET)/VF-26 board at the point where the raster just starts appearing.


The raster just starts appearing.

VF Screen


TP2
RV11
DC BALANCE
TP5
E1
TP1
RV9
V SIZE
RV7
V HOLD
RV5
H HOLD
RV4
AUDIO LEVEL
RV6
V LIN
RV8
V SIZE
TP4
RV10
SUB FOCUS
TP3
C19
T2
RV1
H SIZE
RV2
BRIGHT SET
RV3
FOCUS

VF-26 BOARD (COMPONENT SIDE)

Step 56. Focus Adjustment

- Note

Step 58. Picture Frame Adjustment and this adjustment affect each other. Repeat these adjustments until both specifications are satisfied.

- Setting

Object : Resolution chart

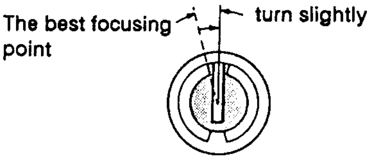
Equipment : Waveform monitor

- Preparation

Iris control AUTO/MANU switch (Lens)--> "MANU"
S5 (WHT CLIP & KNEE)/PR-78 board --> "OFF"
BRIGHT control (viewfinder) --> mechanical center
CONTR control (viewfinder) --> fully clockwise↻
S1(PEAKING)/VF-26 board --> "OFF"
● RV10 (SUB FOCUS)/VF-26 board --> fully clockwise↻

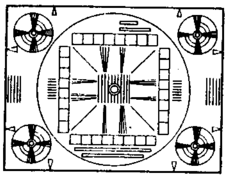
- Adjustment procedures

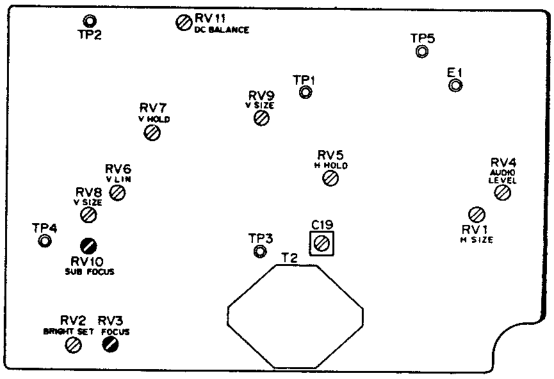
1. Adjust the zoom control so that the resolution chart touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the peak level at TEST OUT terminal is 700±10 mV.
3. Adjust ● RV3 (FOCUS)/VF-26 board so that the picture on the viewfinder is best focused.
4. S1 (PEAKING)/VF-26 board --> "ON"
5. Adjust ● RV10 (SUB FOCUS)/VF-26 board so that the picture on the viewfinder is best focused, then turn it clockwise at an angle of approx. 15°.


The best focusing point
turn slightly

6. S1 (PEAKING)/vf-26 board --> "OFF"
7. Adjust ● RV3 (FOCUS)/VF-26 board so that the picture on the viewfinder is best focused.

Monitor screen




TP2
RV11 DC BALANCE
TP5
E1
TP1
RV9 V SIZE
RV7 V HOLD
RV5 H HOLD
RV4 AUDIO LEVEL
RV6 V LIN
RV8 V SIZE
TP4
RV1 H SIZE
TP3
C19
T2
RV10 SUB FOCUS
RV2 BRIGHT SET
RV3 FOCUS

VF-26 BOARD (COMPONENT SIDE)

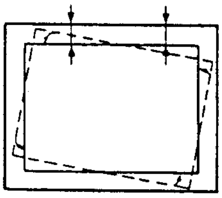
- Note

After this adjustment is completed, set the S5 (WHT CLIP & KNEE)/PR-78 board to "ON".

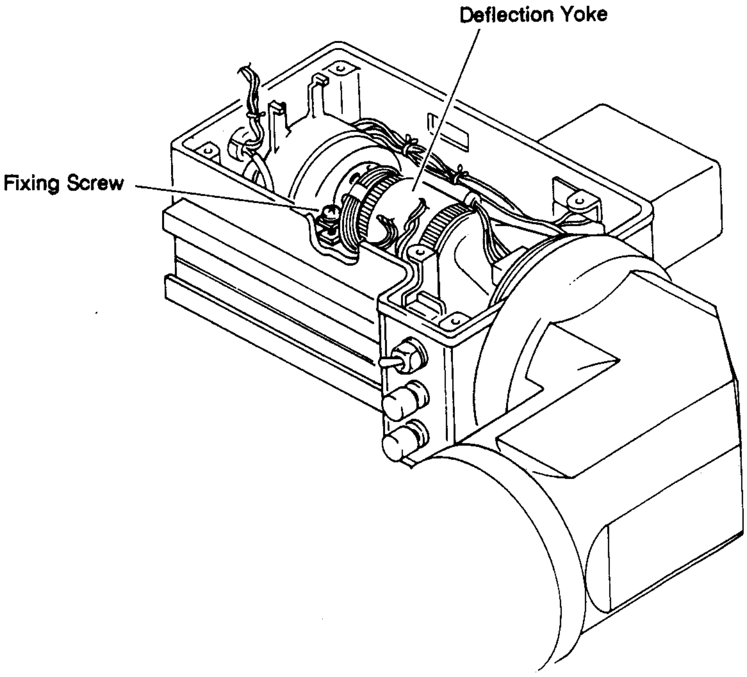
Step 57. Deflection Yoke Tilt Adjustment

- Adjustment procedures

1. When the picture on the viewfinder tilts against the picture frame, loosen the deflection yoke fixing screw and turn the yoke for adjustment of inclination.
2. Tighten the fixing screw carefully.



VF Screen



Step 58. Picture Frame Adjustment

- Note

Step 56. Focus Adjustment and this adjustment affect each other. Repeat these adjustments until both specifications are satisfied.

- Setting

Object : Resolution chart	Equipment : Waveform monitor

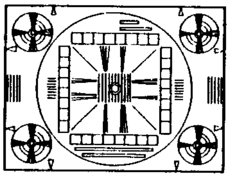
- Preparation

1. BRIGHT control (viewfinder) --> mechanical center CONTR control (viewfinder) --> mechanical center S1(PEAKING)/VF-26 board --> "OFF"	2. Remove the eye cap from the viewfinder.

- Adjustment procedures

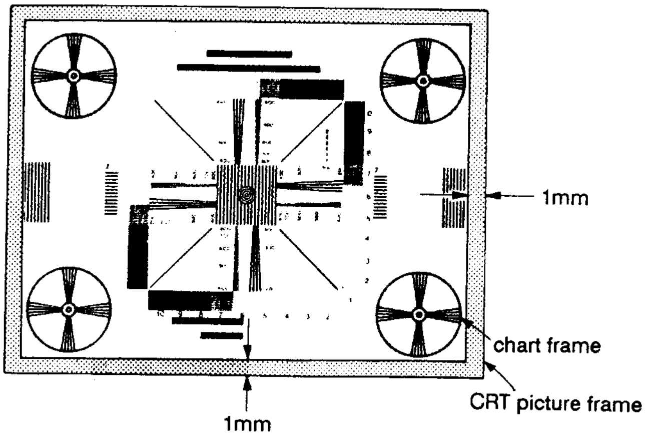
1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor screen. Adjust the iris control so that the white level at TEST OUT terminal is 700 ± 10 mV.

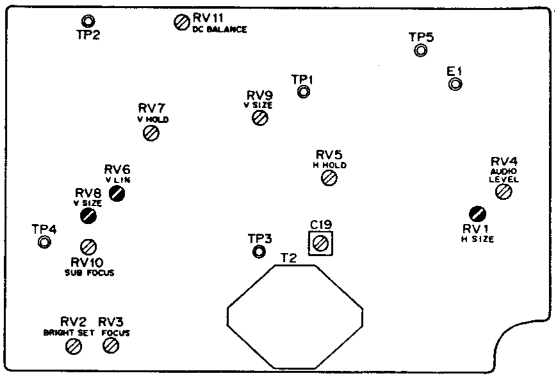
Monitor Screen



2. Adjust the centering magnet of the deflection coil so that the center of resolution chart is located at the center of VF screen.
3. Adjust ● RV1(H SIZE)/VF-26 board so that the H size of resolution chart is underscanned by approx. 1mm from the CRT picture frame.
4. Adjust ● RV8(V SIZE)/VF-26 board so that the V size of resolution chart is underscanned by approx. 1mm from the CRT picture frame.

Viewfinder Screen


1mm
chart frame
CRT picture frame
1mm


TP2
RV11
DC BALANCE
TP5
E1
TP1
RV9
V SIZE
RV7
V HOLD
RV5
H HOLD
RV4
AUDIO
LEVEL
RV6
V LIN
RV8
V SIZE
RV1
H SIZE
TP4
RV10
SUB FOCUS
TP3
C19
T2
RV2
BRIGHT SET
RV3
FOCUS

VF-26 BOARD (COMPONENT SIDE)

5. Adjust ● RV6(V LIN)/VF-26 board so that the distortion of each circle at the four corners of resolution chart is minimized.
6. Adjust the centering magnet of the deflection coil so that the resolution chart is located in the center of VF screen.
7. When the picture on the viewfinder screen tilts against the picture frame, perform step 59 Deflection Yoke Tilt Adjustment.
8. Repeat item 2 to item 7 until the specifications are satisfied.

Step 59. Audio Level Adjustment

- Note

When the camera is connected to VTR (BVV-1PS/1APS), this adjustment can not be performed.
Adjust that in the camera stand alone.

- Setting

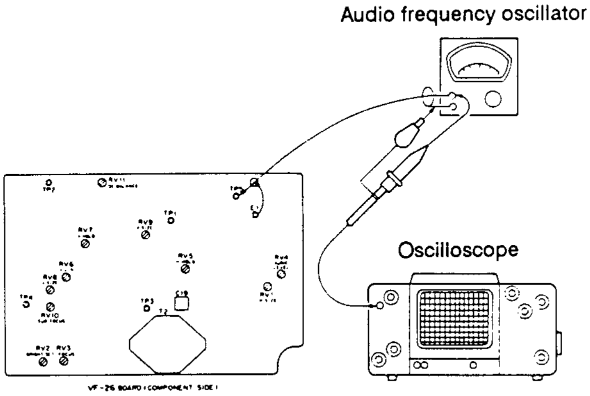
Equipment : Oscilloscope, Audio Frequency Oscillator

- Preparation

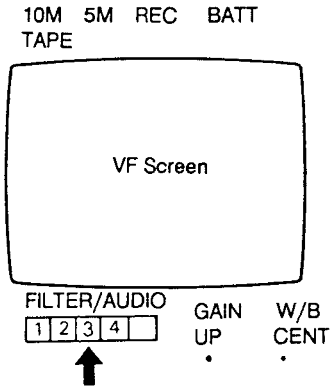
AUDIO/FILTER switch (viewfinder) --> "AUDIO"
TALLY/ZEBRA ON/OFF switch (viewfinder) --> "OFF" (the center)

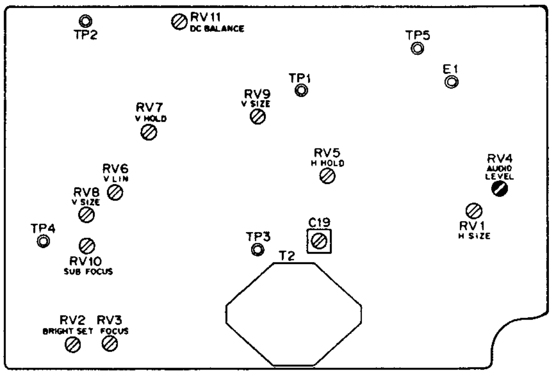
- Adjustment procedures

Connection:


Audio frequency oscillator
Oscilloscope

1. Adjust ⊘ RV4 (AUDIO LEVEL)/VF-26 board so that 3 on the FILTER/AUDIO indication plate of the viewfinder lights up slightly when the sine-wave of 1kHz, 0.332Vp-p is fed to TP5 (GND:E1)/VF-26 board and 3 goes off when the sine-wave level is reduced to 0.328Vp-p.


10M
5M
REC
BATT
TAPE
VF Screen
FILTER/AUDIO
1
2
3
4
GAIN UP
W/B CENT


TP2
RV11 DC BALANCE
TP5
E1
TP1
RV9 V SIZE
RV7 V HOLD
RV5 H HOLD
RV4 AUDIO LEVEL
RV6 V LIN
RV8 V SIZE
RV1 H SIZE
TP4
TP3
C19
T2
RV10 SUB FOCUS
RV2 BRIGHT SET
RV3 FOCUS

VF-26 BOARD (COMPONENT SIDE)

Step 60. Peaking Level Adjustment

- Setting

Object : Resolution chart	Equipment : Waveform monitor

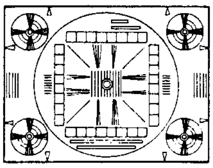
- Preparation

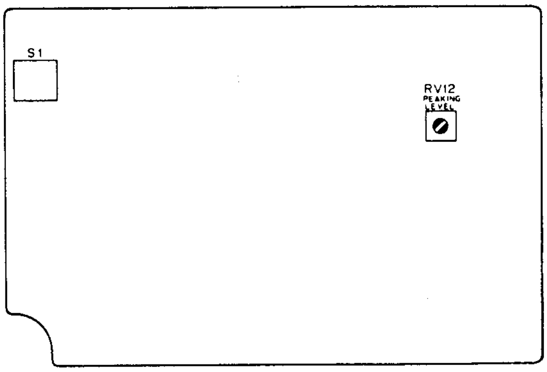
S1 (PEAKING)/VF-26 board --> "ON"

- Adjustment procedures

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the peak level of the waveform at TEST OUT terminal is 700 ± 10mV.
3. Set the peak level on the VF screen according to the users' request by adjusting ⊘ RV12 (PEAKING LEVEL)/VF-26 board.

Monitor Screen





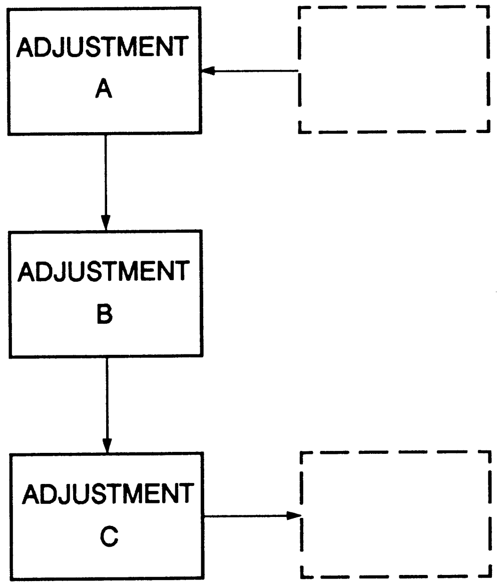
VF-26 BOARD (SOLDERING SIDE)

4-3. PARTIAL ADJUSTMENT

Before this adjustment, set the switches referring to 4-1-2. Connection and initial Setting.

4-3-1. Partial adjustment of Video Signal System

The relation between respective adjustments of the video signal system is described in the Fig. 4-1. Perform the adjustments in order as shown below.


ADJUSTMENT A
ADJUSTMENT B
ADJUSTMENT C

* When performing the ADJUSTMENT B;
(1) Check that the ADJUSTMENT A satisfies the specification.
(If not, it is necessary to readjust it.)
(2) Carry out the ADJUSTMENT B.
(3) Check that the ADJUSTMENT C satisfies the specification.
(If not, it is necessary to readjust it.)

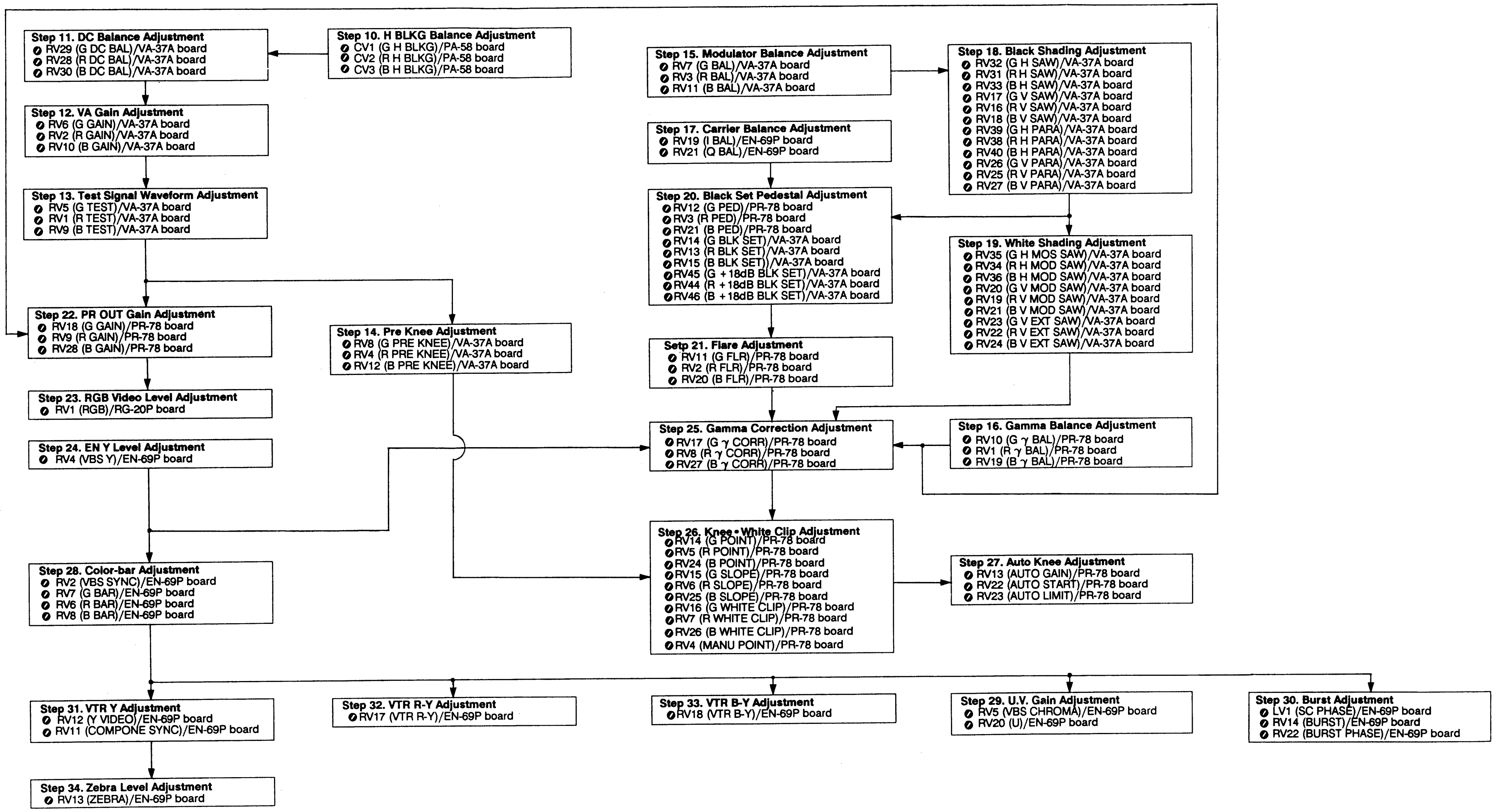
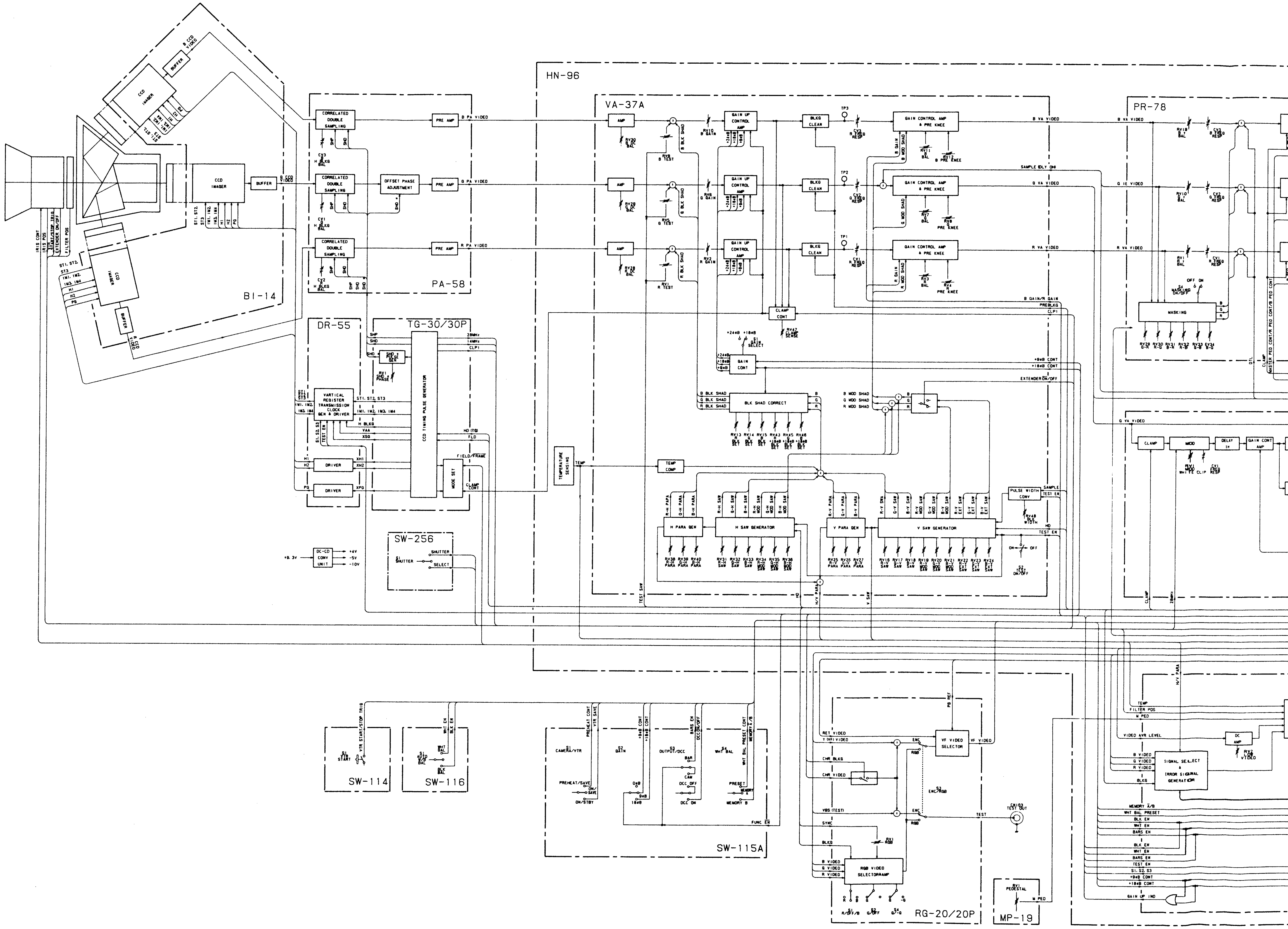
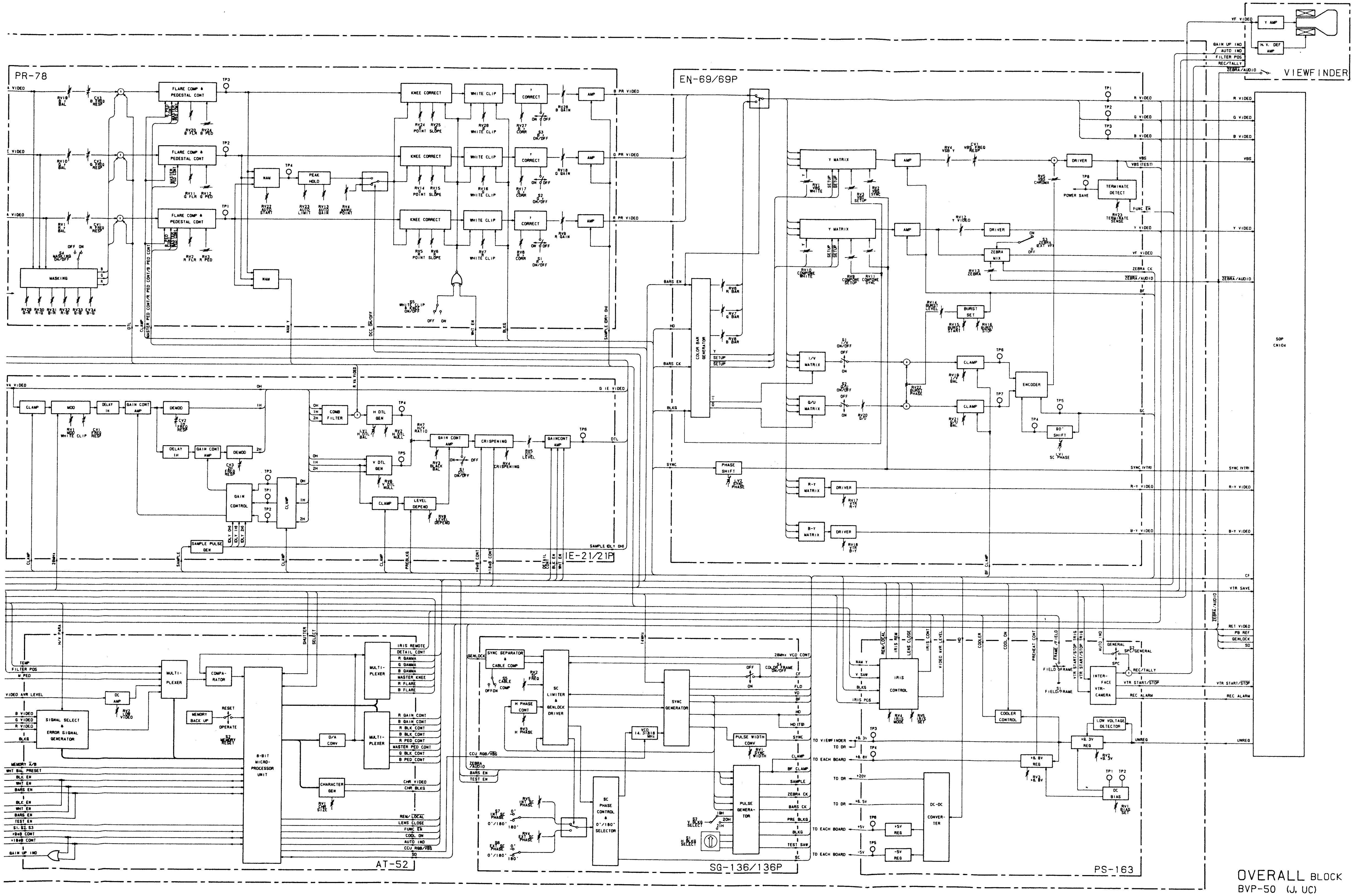

Step 11. DC Balance Adjustment
⊘ RV29 (G DC BAL)/VA-37A board
⊘ RV28 (R DC BAL)/VA-37A board
⊘ RV30 (B DC BAL)/VA-37A board
Step 10. H BLKG Balance Adjustment
⊘ CV1 (G H BLKG)/PA-58 board
⊘ CV2 (R H BLKG)/PA-58 board
⊘ CV3 (B H BLKG)/PA-58 board
Step 12. VA Gain Adjustment
⊘ RV6 (G GAIN)/VA-37A board
⊘ RV2 (R GAIN)/VA-37A board
⊘ RV10 (B GAIN)/VA-37A board
Step 13. Test Signal Waveform Adjustment
⊘ RV5 (G TEST)/VA-37A board
⊘ RV1 (R TEST)/VA-37A board
⊘ RV9 (B TEST)/VA-37A board
Step 22. PR OUT Gain Adjustment
⊘ RV18 (G GAIN)/PR-78 board
⊘ RV9 (R GAIN)/PR-78 board
⊘ RV28 (B GAIN)/PR-78 board
Step 14. Pre Knee Adjustment
⊘ RV8 (G PRE KNEE)/VA-37A board
⊘ RV4 (R PRE KNEE)/VA-37A board
⊘ RV12 (B PRE KNEE)/VA-37A board
Step 23. RGB Video Level Adjustment
⊘ RV1 (RGB)/RG-20P board
Step 24. EN Y Level Adjustment
⊘ RV4 (VBS Y)/EN-69P board
Step 15. Modulator Balance Adjustment
⊘ RV7 (G BAL)/VA-37A board
⊘ RV3 (R BAL)/VA-37A board
⊘ RV11 (B BAL)/VA-37A board
Step 18. Black Shading Adjustment
⊘ RV32 (G H SAW)/VA-37A board
⊘ RV31 (R H SAW)/VA-37A board
⊘ RV33 (B H SAW)/VA-37A board
⊘ RV17 (G V SAW)/VA-37A board
⊘ RV16 (R V SAW)/VA-37A board
⊘ RV18 (B V SAW)/VA-37A board
⊘ RV39 (G H PARA)/VA-37A board
⊘ RV38 (R H PARA)/VA-37A board
⊘ RV40 (B H PARA)/VA-37A board
⊘ RV26 (G V PARA)/VA-37A board
⊘ RV25 (R V PARA)/VA-37A board
⊘ RV27 (B V PARA)/VA-37A board
Step 17. Carrier Balance Adjustment
⊘ RV19 (I BAL)/EN-69P board
⊘ RV21 (Q BAL)/EN-69P board
Step 20. Black Set Pedestal Adjustment
⊘ RV12 (G PED)/PR-78 board
⊘ RV3 (R PED)/PR-78 board
⊘ RV21 (B PED)/PR-78 board
⊘ RV14 (G BLK SET)/VA-37A board
⊘ RV13 (R BLK SET)/VA-37A board
⊘ RV15 (B BLK SET))/VA-37A board
⊘ RV45 (G +18dB BLK SET)/VA-37A board
⊘ RV44 (R +18dB BLK SET)/VA-37A board
⊘ RV46 (B +18dB BLK SET)/VA-37A board
Step 19. White Shading Adjustment
⊘ RV35 (G H MOS SAW)/VA-37A board
⊘ RV34 (R H MOD SAW)/VA-37A board
⊘ RV36 (B H MOD SAW)/VA-37A board
⊘ RV20 (G V MOD SAW)/VA-37A board
⊘ RV19 (R V MOD SAW)/VA-37A board
⊘ RV21 (B V MOD SAW)/VA-37A board
⊘ RV23 (G V EXT SAW)/VA-37A board
⊘ RV22 (R V EXT SAW)/VA-37A board
⊘ RV24 (B V EXT SAW)/VA-37A board
Setp 21. Flare Adjustment
⊘ RV11 (G FLR)/PR-78 board
⊘ RV2 (R FLR)/PR-78 board
⊘ RV20 (B FLR)/PR-78 board
Step 25. Gamma Correction Adjustment
⊘ RV17 (G γ CORR)/PR-78 board
⊘ RV8 (R γ CORR)/PR-78 board
⊘ RV27 (B γ CORR)/PR-78 board
Step 16. Gamma Balance Adjustment
⊘ RV10 (G γ BAL)/PR-78 board
⊘ RV1 (R γ BAL)/PR-78 board
⊘ RV19 (B γ BAL)/PR-78 board
Step 26. Knee • White Clip Adjustment
⊘ RV14 (G POINT)/PR-78 board
⊘ RV5 (R POINT)/PR-78 board
⊘ RV24 (B POINT)/PR-78 board
⊘ RV15 (G SLOPE)/PR-78 board
⊘ RV6 (R SLOPE)/PR-78 board
⊘ RV25 (B SLOPE)/PR-78 board
⊘ RV16 (G WHITE CLIP)/PR-78 board
⊘ RV7 (R WHITE CLIP)/PR-78 board
⊘ RV26 (B WHITE CLIP)/PR-78 board
⊘ RV4 (MANU POINT)/PR-78 board
Step 27. Auto Knee Adjustment
⊘ RV13 (AUTO GAIN)/PR-78 board
⊘ RV22 (AUTO START)/PR-78 board
⊘ RV23 (AUTO LIMIT)/PR-78 board
Step 28. Color-bar Adjustment
⊘ RV2 (VBS SYNC)/EN-69P board
⊘ RV7 (G BAR)/EN-69P board
⊘ RV6 (R BAR)/EN-69P board
⊘ RV8 (B BAR)/EN-69P board
Step 31. VTR Y Adjustment
⊘ RV12 (Y VIDEO)/EN-69P board
⊘ RV11 (COMPONE SYNC)/EN-69P board
Step 32. VTR R-Y Adjustment
⊘ RV17 (VTR R-Y)/EN-69P board
Step 33. VTR B-Y Adjustment
⊘ RV18 (VTR B-Y)/EN-69P board
Step 29. U.V. Gain Adjustment
⊘ RV5 (VBS CHROMA)/EN-69P board
⊘ RV20 (U)/EN-69P board
Step 30. Burst Adjustment
⊘ LV1 (SC PHASE)/EN-69P board
⊘ RV14 (BURST)/EN-69P board
⊘ RV22 (BURST PHASE)/EN-69P board
Step 34. Zebra Level Adjustment
⊘ RV13 (ZEBRA)/EN-69P board

Fig. 4-1

SECTION 5
BLOCK DIAGRAMS

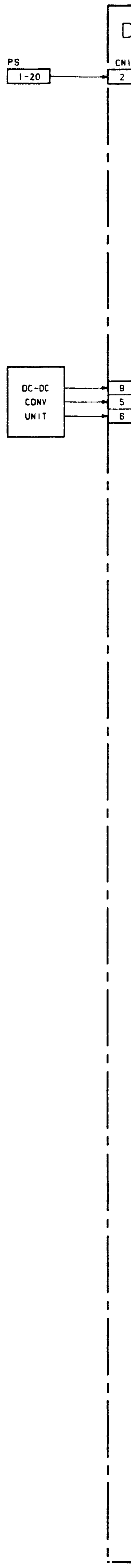
OVERALL BLOCK

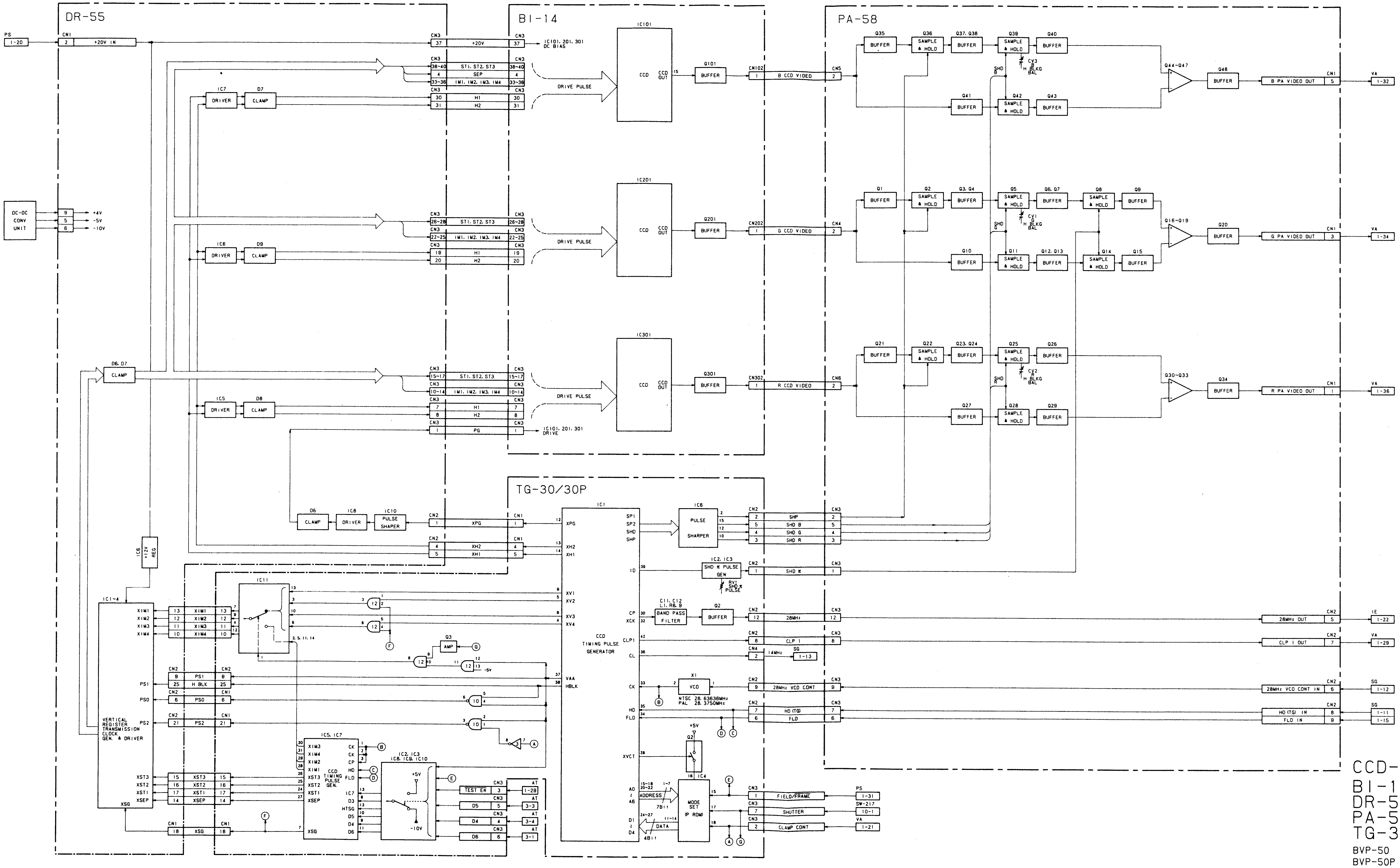

BI-14
CCD IMAGER
BUFFER
B CCD VIDEO
G CCD VIDEO
R CCD VIDEO
IRIS CONT
IRIS POS
FILTER POS
EXTENDER ON/OFF
PA-58
CORRELATED DOUBLE SAMPLING
OFFSET PHASE ADJUSTMENT
PRE AMP
B PA VIDEO
G PA VIDEO
R PA VIDEO
DR-55
VARTICAL RESISTER TRANSMISSION CLOCK GEN & DRIVER
DRIVER
TG-30/30P
CCD TIMING PULSE GENERATOR
MODE SET
SW-256
SHUTTER
SELECT
DC-DC CONV UNIT
+4V
-5V
-10V
HN-96
VA-37A
AMP
GAIN UP CONTROL AMP
BLKG CLEAN
GAIN CONTROL AMP & PRE KNEE
B VA VIDEO
G VA VIDEO
R VA VIDEO
CLAMP CONT
GAIN CONT
BLK SHAD CORRECT
TEMPERATURE SENSOR
TEMP COMP
H PARA GEN
H SAW GENERATOR
V PARA GEN
V SAW GENERATOR
PULSE WIDTH CONV
TP1
TP2
TP3
PR-78
MASKING
CLAMP
MOD
DELAY
GAIN CONT AMP
WHITE CLIP
SW-114
SW-116
SW-115A
RG-20/20P
VF VIDEO SELECTOR
RGB VIDEO SELECTOR/AMP
TEST OUT
MP-19
PEDESTAL
SIGNAL SELECT & ERROR SIGNAL GENERATOR
DC AMP


PR-78
FLARE COMP & PEDESTAL CONT
KNEE CORRECT
WHITE CLIP
γ CORRECT
AMP
RAM
PEAK HOLD
MASKING
EN-69/69P
Y MATRIX
DRIVER
TERMINATE DETECT
ZEBRA MIX
BURST SET
COLOR BAR GENERATOR
I/Y MATRIX
Q/U MATRIX
CLAMP
ENCODER
90° SHIFT
PHASE SHIFT
R-Y MATRIX
B-Y MATRIX
VIEWFINDER
Y AMP
H.V. DEF AMP
SOP CN104
CLAMP
MOD
DELAY 1H
GAIN CONT AMP
DEMOD
COMB FILTER
H DTL GEN
V DTL GEN
CRISPENING
LEVEL DEPEND
GAIN CONTROL
SAMPLE PULSE GEN
IE-21/21P
MULTI-PLEXER
COMPA-RATOR
SIGNAL SELECT & ERROR SIGNAL GENERATOR
DC AMP
MEMORY BACK UP
8-BIT MICRO-PROCESSOR UNIT
D/A CONV
CHARACTER GEN
AT-52
SYNC SEPARATOR & CABLE COMP
H PHASE CONT
SC LIMITER & GENLOCK DRIVER
SYNC GENERATOR
VCO 14.31818 MHz
SC PHASE CONTROL & 0°/180° SELECTOR
PULSE WIDTH CONV
PULSE GENERA-TOR
SG-136/136P
IRIS CONTROL
COOLER CONTROL
INTER-FACE VTR-CAMERA
LOW VOLTAGE DETECTOR
+6.3V REG
+8.8V REG
DC-DC CONVER-TER
+5V REG
-5V REG
DC BIAS
PS-163

OVERALL BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

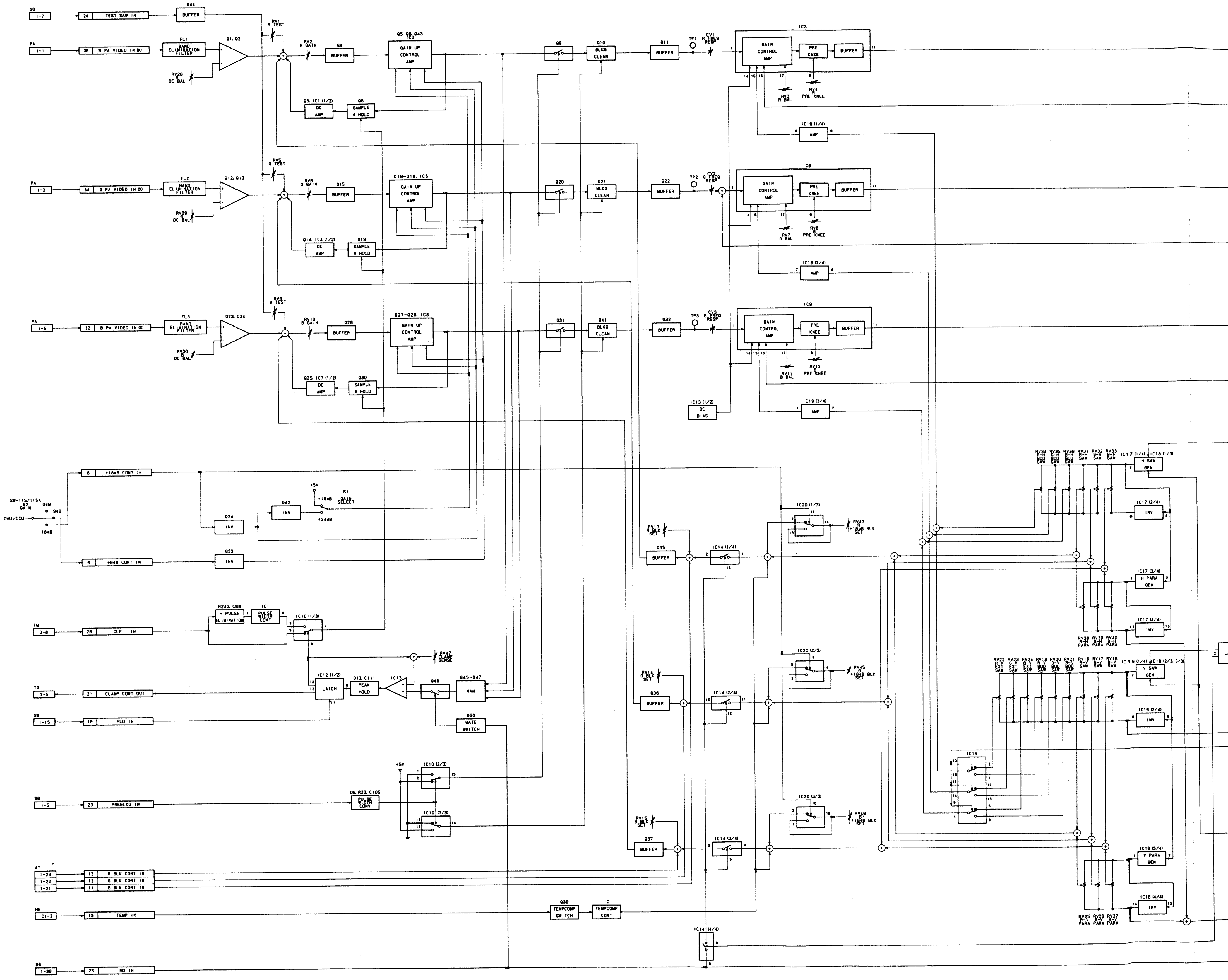
CCD BLOCK

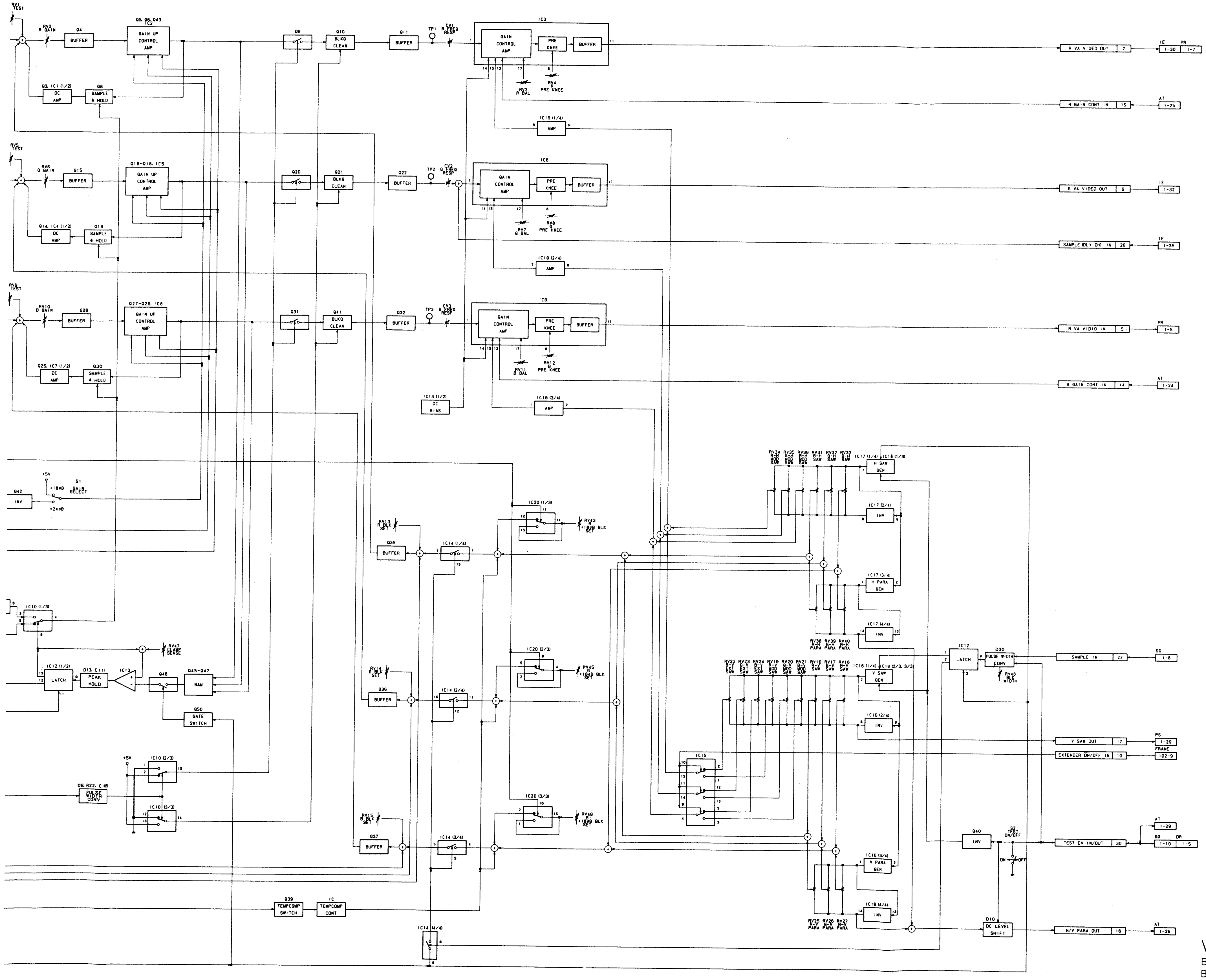

D
PS
1-20
CN1
2
DC-DC
CONV
UNIT
9
5
6


DR-55
BI-14
PA-58
TG-30/30P
PS 1-20
CN1 2 +20V IN
CN3 37 +20V 37
IC101, 201, 301 DC BIAS
DC-DC CONV UNIT
9 +4V
5 -5V
6 -10V
IC7 DRIVER
D7 CLAMP
IC6 DRIVER
D9 CLAMP
IC5 DRIVER
D8 CLAMP
D6, D7 CLAMP
ST1, ST2, ST3
SEP
IM1, IM2, IM3, IM4
H1
H2
PG
IC101, 201, 301 DRIVE
DRIVE PULSE
IC101
IC201
IC301
CCD
CCD OUT
Q101 BUFFER
Q201 BUFFER
Q301 BUFFER
CN102 1 B CCD VIDEO CN5 2
CN202 1 G CCD VIDEO CN4 2
CN302 1 R CCD VIDEO CN6 2
Q35 BUFFER
Q36 SAMPLE & HOLD
Q37, Q38 BUFFER
Q39 SAMPLE & HOLD
Q40 BUFFER
Q41 BUFFER
Q42 SAMPLE & HOLD
Q43 BUFFER
SHD B
CV3 H BLKG BAL
Q44-Q47
Q48 BUFFER
B PA VIDEO OUT CN1 5
VA 1-32
Q1 BUFFER
Q2 SAMPLE & HOLD
Q3, Q4 BUFFER
Q5 SAMPLE & HOLD
Q6, Q7 BUFFER
Q8 SAMPLE & HOLD
Q9 BUFFER
SHD G
CV1 H BLKG BAL
Q10 BUFFER
Q11 SAMPLE & HOLD
Q12, Q13 BUFFER
Q14 SAMPLE & HOLD
Q15 BUFFER
Q16-Q19
Q20 BUFFER
G PA VIDEO OUT CN1 3
VA 1-34
Q21 BUFFER
Q22 SAMPLE & HOLD
Q23, Q24 BUFFER
Q25 SAMPLE & HOLD
Q26 BUFFER
SHD R
CV2 H BLKG BAL
Q27 BUFFER
Q28 SAMPLE & HOLD
Q29 BUFFER
Q30-Q33
Q34 BUFFER
R PA VIDEO OUT CN1 1
VA 1-36
D6 CLAMP
IC8 DRIVER
IC10 PULSE SHAPER
XPG
XH2
XH1
IC6 +12V REG
IC1-4
XIM1
XIM2
XIM3
XIM4
PS1
H BLK
PS0
PS2
VERTICAL REGISTER TRANSMISSION CLOCK GEN. & DRIVER
XST3
XST2
XST1
XSEP
XSG
IC11
Q3 AMP
IC5, IC7
CCD TIMING PULSE GEN.
HTSG
IC2, IC3 IC8, IC9, IC10
+5V
-10V
TEST EN 3 AT 1-28
D5 5 AT 3-3
D4 4 AT 3-4
D6 6 AT 3-1
IC1
CCD TIMING PULSE GENERATOR
XPG
XH2
XH1
XV1
XV2
XV3
XV4
VAA
HBLK
SP1
SP2
SHD
SHP
ID
CP
XCK
CLP1
CL
CK
HD
FLD
XVCT
A0 ~ A6
D1 ~ D4
IC6 PULSE SHARPER
SHP
SHD B
SHD G
SHD R
IC2, IC3 SHD R PULSE GEN
RV1 SHD R PULSE
C11, C12 L1, R8, 9
BAND PASS FILTER
Q2 BUFFER
28MHz
CLP 1
14MHz
SG 1-13
X1 VCO
NTSC 28.63636MHz
PAL 28.3750MHz
28MHz VCO CONT
HD (TG)
FLD
28MHz OUT CN2 5
IE 1-22
CLP 1 OUT CN2 7
VA 1-29
28MHz VCO CONT IN CN2 6
SG 1-12
HD (TG) IN CN2 8
FLD IN CN2 9
SG 1-11
1-15
Q2
IC4 MODE SET (P ROM)
ADDRESS 7Bit
DATA 4Bit
FIELD/FRAME
SHUTTER
CLAMP CONT
PS 1-31
SW-217 10-1
VA 1-21

CCD-BLOCK
BI-14 BLOCK
DR-55 BLOCK
PA-58 BLOCK
TG-30/30P BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

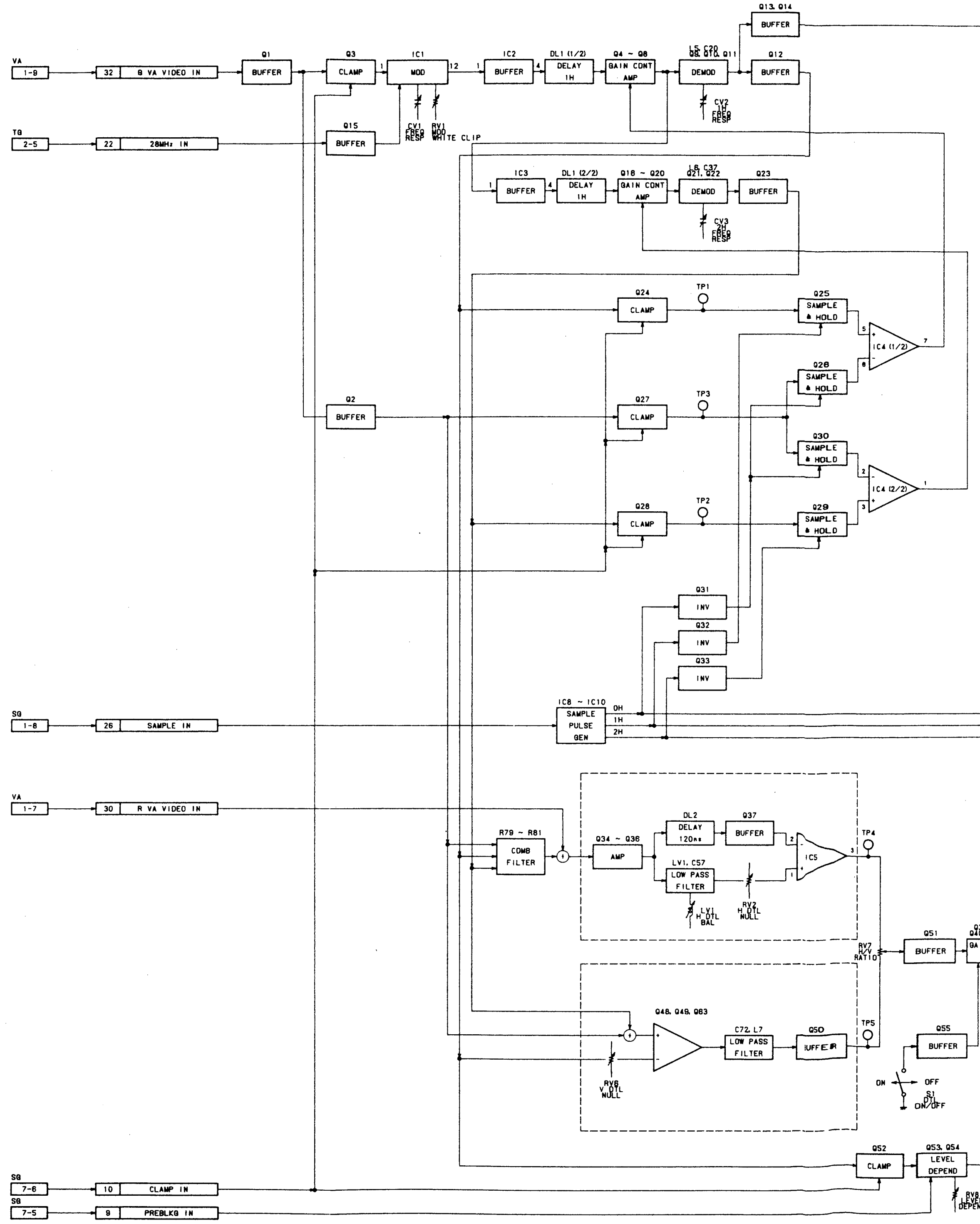
VA-37A BLOCK


24 TEST SAW IN
36 R PA VIDEO IN OO
34 G PA VIDEO IN OO
32 B PA VIDEO IN OO
BAND ELIMINATION FILTER
BUFFER
GAIN UP CONTROL AMP
DC AMP
SAMPLE & HOLD
BLKG CLEAN
GAIN CONTROL AMP
PRE KNEE
AMP
DC BIAS
8 +18dB CONT IN
6 +9dB CONT IN
INV
GAIN SELECT
28 CLP I IN
H PULSE ELIMINATION
PULSE WIDTH CONT
21 CLAMP CONT OUT
LATCH
PEAK HOLD
NAM
GATE SWITCH
19 FLD IN
23 PREBLKG IN
PULSE WIDTH CONV
13 R BLK CONT IN
12 G BLK CONT IN
11 B BLK CONT IN
18 TEMP IN
TEMPCOMP SWITCH
TEMPCOMP CONT
25 HD IN
H SAW GEN
H PARA GEN
V SAW GEN
V PARA GEN

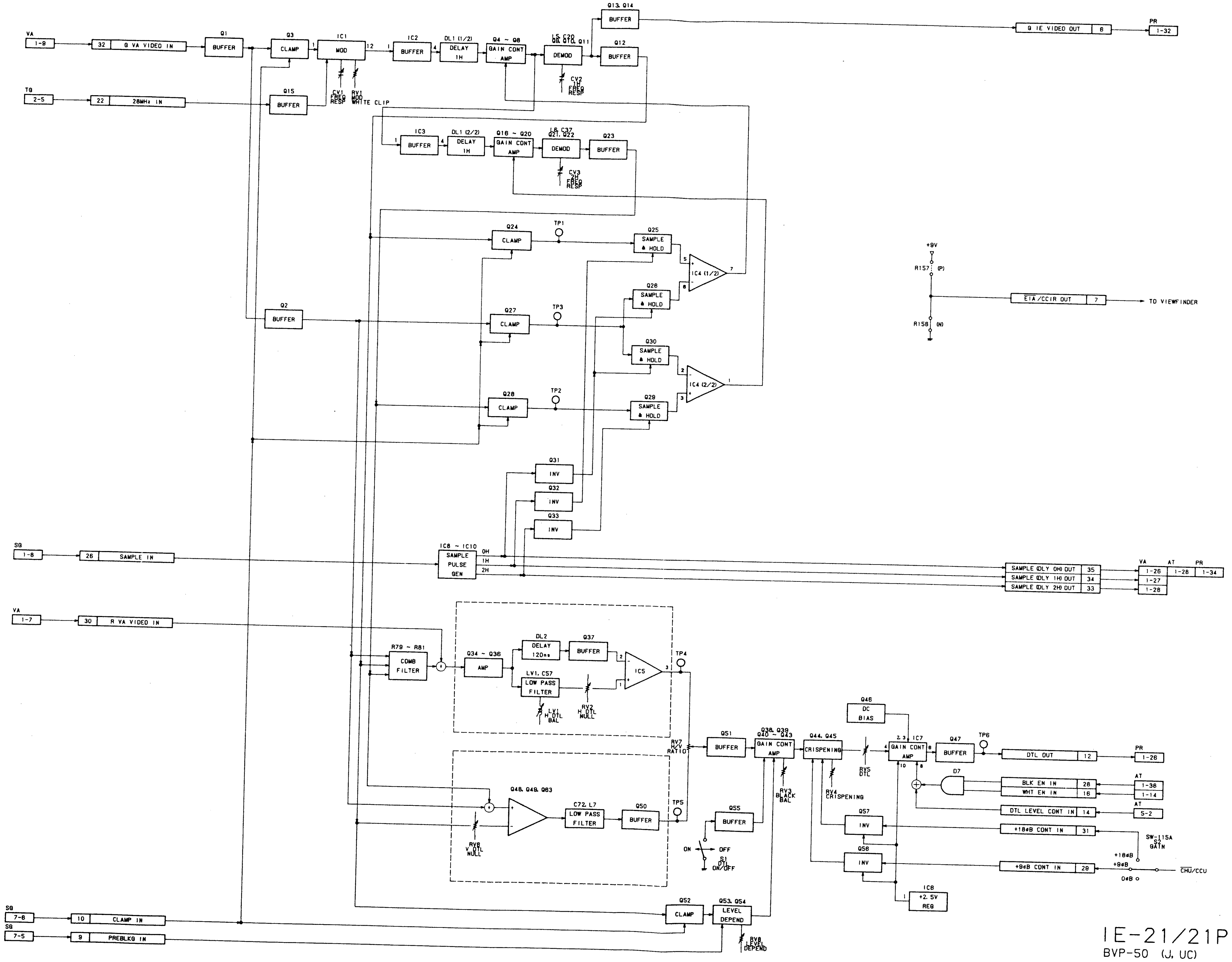

RV1 TEST
RV2 R GAIN
Q4 BUFFER
Q5, Q6, Q43 IC2 GAIN UP CONTROL AMP
Q3, IC1 (1/2) DC AMP
Q8 SAMPLE & HOLD
Q9
Q10 BLKG CLEAN
Q11 BUFFER
TP1
CV1 R FREQ RESP
IC3 GAIN CONTROL AMP
PRE KNEE
BUFFER
RV3 R BAL
RV4 R PRE KNEE
R VA VIDEO OUT 7
IE 1-30
PR 1-7
R GAIN CONT IN 15
AT 1-25
IC19 (1/4) AMP
RV5 TEST
RV6 G GAIN
Q15 BUFFER
Q18-Q18, IC5 GAIN UP CONTROL AMP
Q14, IC4 (1/2) DC AMP
Q19 SAMPLE & HOLD
Q20
Q21 BLKG CLEAN
Q22 BUFFER
TP2
CV2 G FREQ RESP
IC6 GAIN CONTROL AMP
PRE KNEE
BUFFER
RV7 G BAL
RV8 G PRE KNEE
G VA VIDEO OUT 9
IE 1-32
SAMPLE DLY CHG IN 26
IE 1-35
IC18 (2/4) AMP
RV9 TEST
RV10 B GAIN
Q26 BUFFER
Q27-Q29, IC8 GAIN UP CONTROL AMP
Q25, IC7 (1/2) DC AMP
Q30 SAMPLE & HOLD
Q31
Q41 BLKG CLEAN
Q32 BUFFER
TP3
CV3 B FREQ RESP
IC9 GAIN CONTROL AMP
PRE KNEE
BUFFER
RV11 B BAL
RV12 B PRE KNEE
B VA VIDIO IN 5
PR 1-5
B GAIN CONT IN 14
AT 1-24
IC13 (1/2) DC BIAS
IC18 (3/4) AMP
+5V
S1 GAIN SELECT
+18dB
+24dB
Q42 INV
RV34 RV35 RV36 RV31 RV32 RV33
IC17 (1/4) IC18 (1/3) H SAW GEN
IC17 (2/4) INV
IC17 (3/4) H PARA GEN
IC17 (4/4) INV
RV38 RV39 RV40 PARA PARA PARA
IC20 (1/3)
RV13 R BLK SET
RV43 R +18dB BLK SET
Q35 BUFFER
IC14 (1/4)
IC10 (1/3)
RV47 CLAMP SENSE
IC12 (1/2) LATCH
D13, C111 PEAK HOLD
IC13
Q48
Q45-Q47 NAM
Q50 GATE SWITCH
IC20 (2/3)
RV14 G BLK SET
RV45 G +18dB BLK SET
Q36 BUFFER
IC14 (2/4)
RV22 RV23 RV24 RV19 RV20 RV21 RV16 RV17 RV18
IC16 (1/4) IC16 (2/3, 3/3) V SAW GEN
IC16 (2/4) INV
IC12 LATCH
D30 PULSE WIDTH CONV
RV48 BLK WIDTH
SAMPLE IN 22
SG 1-8
V SAW OUT 17
PS 1-29
EXTENDER ON/OFF IN 10
FRAME 102-9
IC15
+5V
IC10 (2/3)
IC10 (3/3)
D8, R22, C105 PULSE WIDTH CONV
IC20 (3/3)
RV15 B BLK SET
RV46 B +18dB BLK SET
Q37 BUFFER
IC14 (3/4)
IC18 (3/4) V PARA GEN
IC18 (4/4) INV
RV25 RV26 RV27 PARA PARA PARA
Q40 INV
S2 TEST ON/OFF
ON OFF
TEST EN IN/OUT 30
AT 1-28
SG 1-10
DR 1-5
D10 DC LEVEL SHIFT
H/V PARA OUT 16
AT 1-26
Q38 TEMPCOMP SWITCH
IC TEMPCOMP CONT
IC14 (4/4)

VA-37/37A BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

IE-21/21P BLOCK

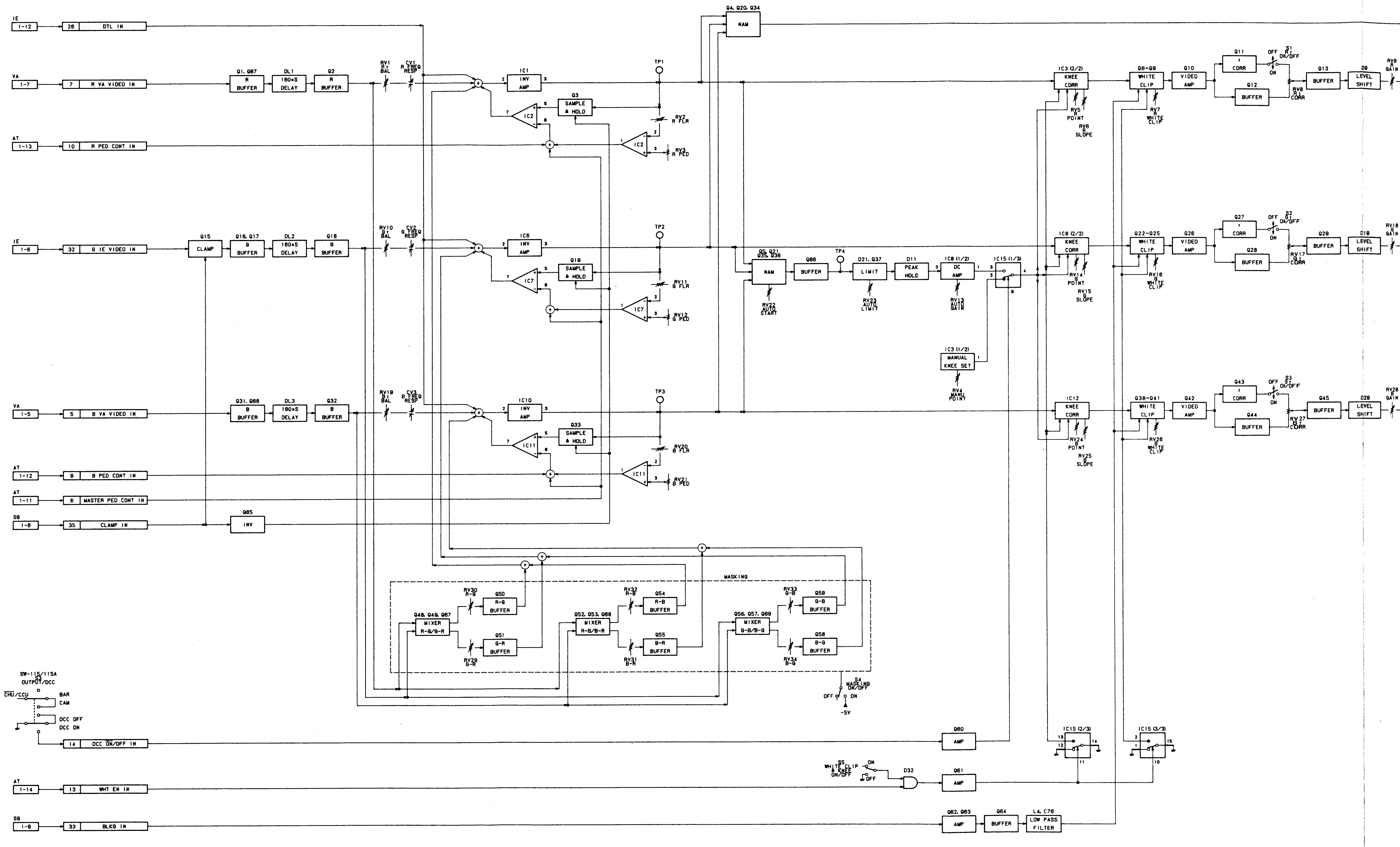

VA
1-8
32
B VA VIDEO IN
Q1
BUFFER
Q3
CLAMP
IC1
MOD
CV1 FREQ RESP
RV1 MOD WHITE CLIP
IC2
BUFFER
DL1 (1/2)
DELAY 1H
Q4 ~ Q8
GAIN CONT AMP
L5, C20
Q9, Q10, Q11
DEMOD
CV2 1H FREQ RESP
Q13, Q14
BUFFER
Q12
BUFFER
TG
2-5
22
28MHz IN
Q15
BUFFER
IC3
BUFFER
DL1 (2/2)
DELAY 1H
Q18 ~ Q20
GAIN CONT AMP
L6, C37
Q21, Q22
DEMOD
CV3 2H FREQ RESP
Q23
BUFFER
Q24
CLAMP
TP1
Q25
SAMPLE & HOLD
IC4 (1/2)
Q26
SAMPLE & HOLD
Q2
BUFFER
Q27
CLAMP
TP3
Q30
SAMPLE & HOLD
IC4 (2/2)
Q28
CLAMP
TP2
Q29
SAMPLE & HOLD
Q31
INV
Q32
INV
Q33
INV
SG
1-8
26
SAMPLE IN
IC8 ~ IC10
SAMPLE PULSE GEN
0H
1H
2H
VA
1-7
30
R VA VIDEO IN
R79 ~ R81
COMB FILTER
Q34 ~ Q36
AMP
DL2
DELAY 120ns
Q37
BUFFER
LV1, C57
LOW PASS FILTER
LV1 H DTL BAL
RV2 H DTL NULL
IC5
TP4
RV7 H/V RATIO
Q51
BUFFER
Q48, Q49, Q63
RV6 V DTL NULL
C72, L7
LOW PASS FILTER
Q50
BUFFER
TP5
Q55
BUFFER
ON
OFF
S1 DTL ON/OFF
Q52
CLAMP
Q53, Q54
LEVEL DEPEND
RV8 LEVEL DEPEND
SG
7-6
10
CLAMP IN
SG
7-5
9
PREBLKG IN

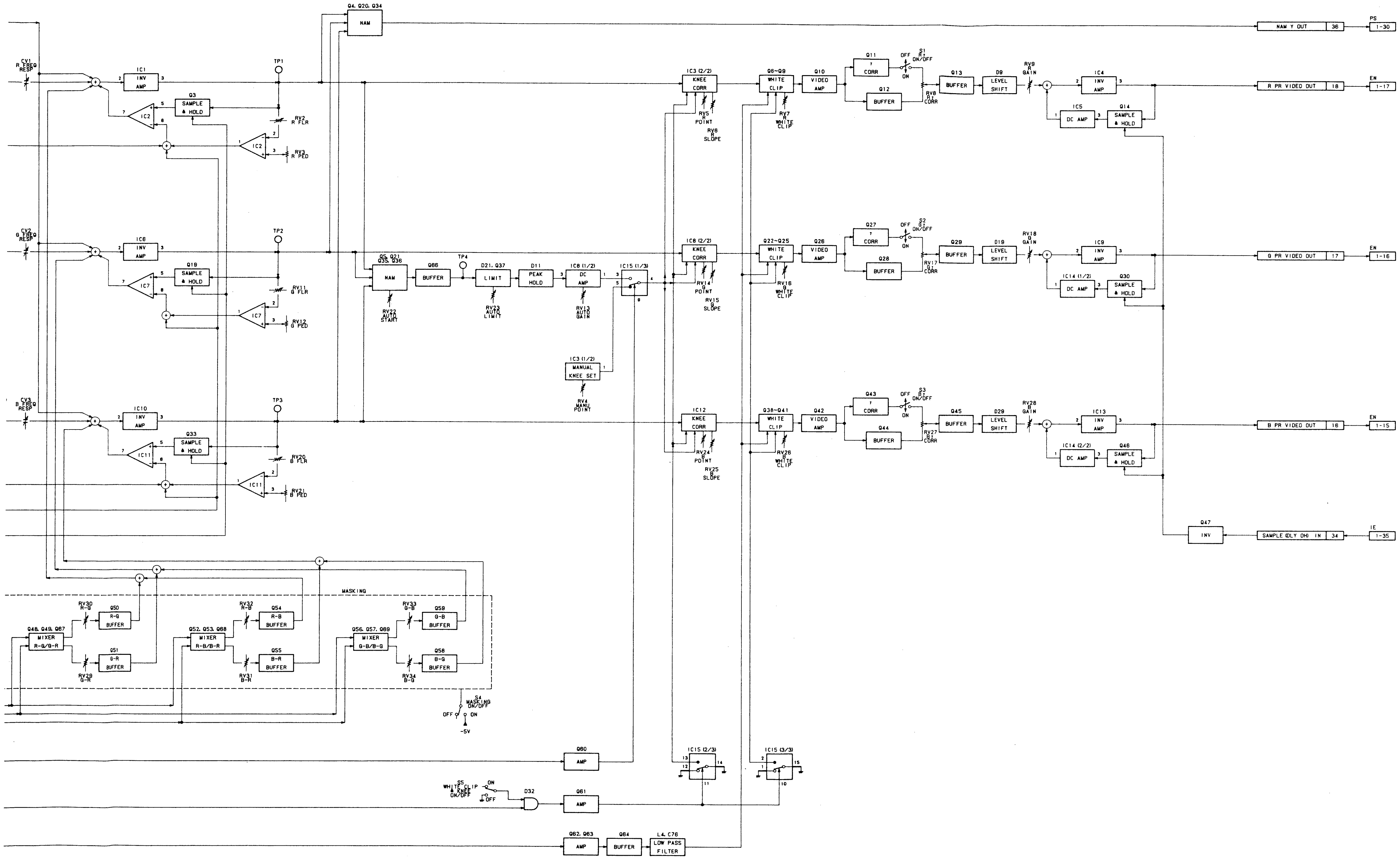
IE-21/21P BLOCK


VA
1-9
32
G VA VIDEO IN
Q1
BUFFER
Q3
CLAMP
IC1
MOD
1
12
CV1
FREQ
RESP
RV1
MOD
WHITE CLIP
IC2
BUFFER
4
DL1 (1/2)
DELAY
1H
Q4 ~ Q8
GAIN CONT
AMP
L5, C20
Q9, Q10, Q11
DEMOD
CV2
1H
FREQ
RESP
Q13, Q14
BUFFER
Q12
BUFFER
G IE VIDEO OUT
6
PR
1-32
TG
2-5
22
28MHz IN
Q15
BUFFER
IC3
BUFFER
DL1 (2/2)
DELAY
1H
Q16 ~ Q20
GAIN CONT
AMP
L6, C37
Q21, Q22
DEMOD
CV3
2H
FREQ
RESP
Q23
BUFFER
Q24
CLAMP
TP1
Q25
SAMPLE
& HOLD
5
6
7
IC4 (1/2)
Q26
SAMPLE
& HOLD
Q2
BUFFER
Q27
CLAMP
TP3
Q30
SAMPLE
& HOLD
2
3
1
IC4 (2/2)
Q28
CLAMP
TP2
Q29
SAMPLE
& HOLD
Q31
INV
Q32
INV
Q33
INV
+9V
R157 (P)
R158 (N)
EIA/CCIR OUT
7
TO VIEWFINDER
SG
1-8
26
SAMPLE IN
IC8 ~ IC10
SAMPLE
PULSE
GEN
0H
1H
2H
SAMPLE (DLY 0H) OUT
35
SAMPLE (DLY 1H) OUT
34
SAMPLE (DLY 2H) OUT
33
VA
1-26
1-27
1-28
AT
1-28
PR
1-34
VA
1-7
30
R VA VIDEO IN
R79 ~ R81
COMB
FILTER
Q34 ~ Q36
AMP
DL2
DELAY
120ns
Q37
BUFFER
LV1, C57
LOW PASS
FILTER
LV1
H DTL
BAL
RV2
H DTL
NULL
IC5
TP4
RV7
H/V
RATIO
Q48, Q49, Q63
RV6
V DTL
NULL
C72, L7
LOW PASS
FILTER
Q50
BUFFER
TP5
ON
OFF
S1
DTL
ON/OFF
Q51
BUFFER
Q38, Q39
Q40 ~ Q43
GAIN CONT
AMP
Q55
BUFFER
RV3
BLACK
BAL
Q44, Q45
CRISPENING
RV4
CRISPENING
RV5
DTL
Q46
DC
BIAS
2, 3
IC7
GAIN CONT
AMP
10
8
Q47
BUFFER
TP6
DTL OUT
12
PR
1-26
D7
BLK EN IN
28
WHT EN IN
16
AT
1-36
1-14
DTL LEVEL CONT IN
14
AT
5-2
Q57
INV
+18dB CONT IN
31
SW-115A
S2
GAIN
+18dB
+9dB
0dB
CHU/CCU
Q56
INV
+9dB CONT IN
29
IC8
+2.5V
REG
SG
7-6
10
CLAMP IN
SG
7-5
9
PREBLKG IN
Q52
CLAMP
Q53, Q54
LEVEL
DEPEND
RV8
LEVEL
DEPEND

IE-21/21P BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

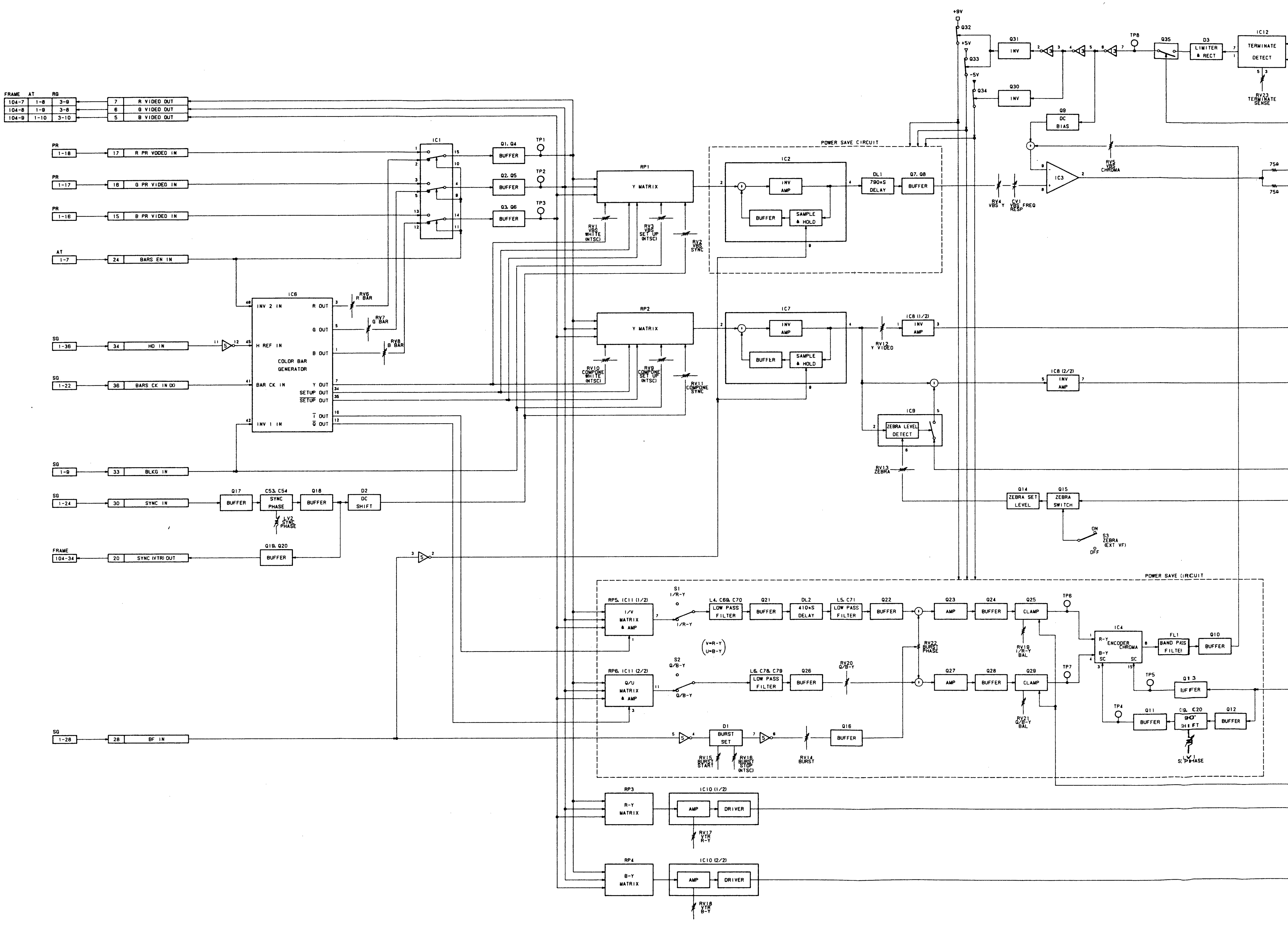
PR-78 BLOCK

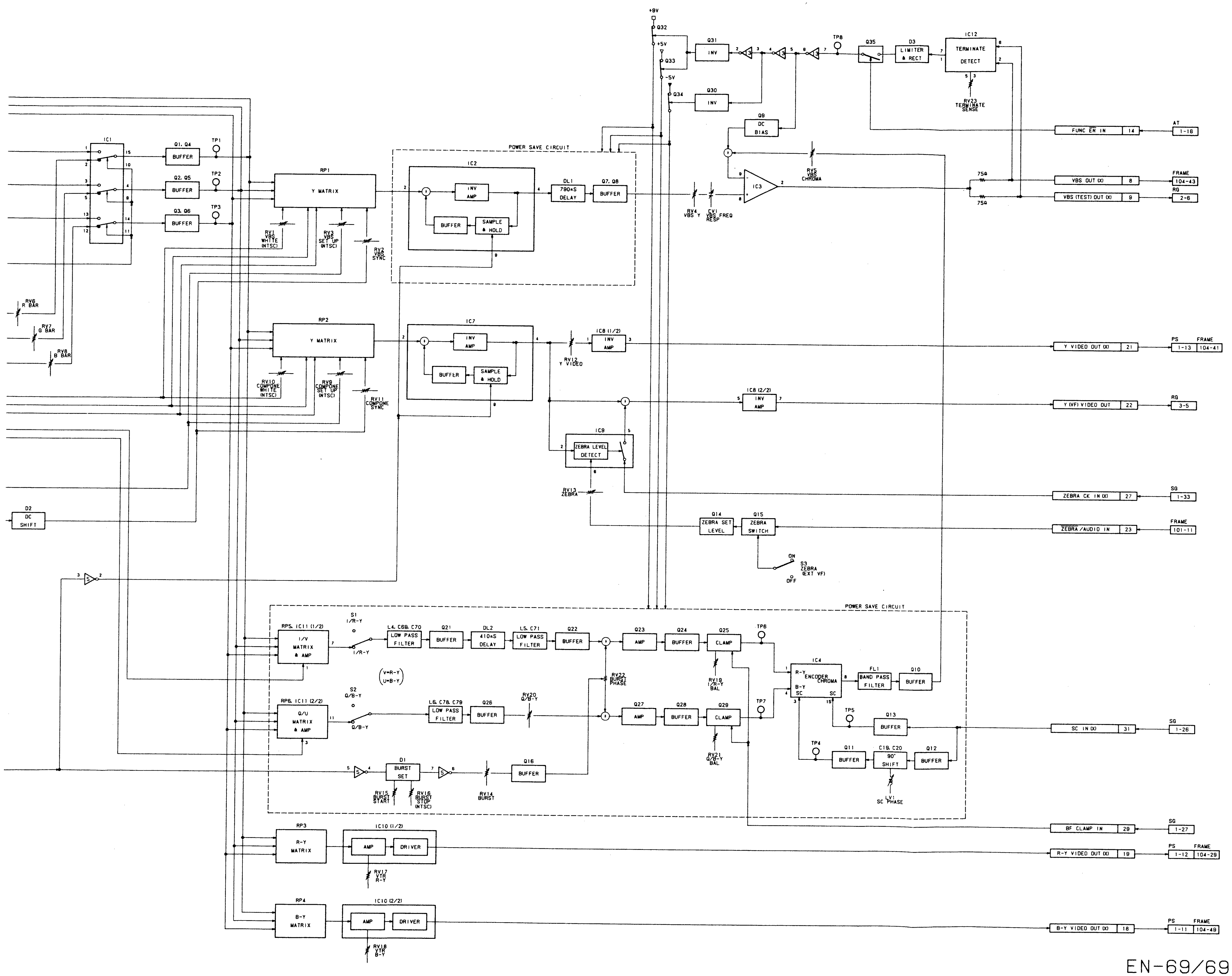

IE 1-12
26 DTL IN
VA 1-7
7 R VA VIDEO IN
AT 1-13
10 R PED CONT IN
IE 1-6
32 G IE VIDEO IN
VA 1-5
5 B VA VIDEO IN
AT 1-12
9 B PED CONT IN
AT 1-11
6 MASTER PED CONT IN
SG 1-8
35 CLAMP IN
Q85 INV
Q15 CLAMP
Q1, Q87 R BUFFER
DL1 180nS DELAY
Q2 R BUFFER
Q16, Q17 G BUFFER
DL2 180nS DELAY
Q18 G BUFFER
Q31, Q88 B BUFFER
DL3 180nS DELAY
Q32 B BUFFER
RV1 R γ BAL
CV1 R FREQ RESP
RV10 G γ BAL
CV2 G FREQ RESP
RV19 B γ BAL
CV3 B FREQ RESP
IC1 INV AMP
IC6 INV AMP
IC10 INV AMP
IC2
IC7
IC11
Q3 SAMPLE & HOLD
Q19 SAMPLE & HOLD
Q33 SAMPLE & HOLD
TP1
TP2
TP3
RV2 R FLR
RV3 R PED
RV11 G FLR
RV12 G PED
RV20 B FLR
RV21 B PED
Q4, Q20, Q34 NAM
Q5, Q21 Q35, Q36 NAM
RV22 AUTO START
Q66 BUFFER
TP4
D21, Q37 LIMIT
RV23 AUTO LIMIT
D11 PEAK HOLD
IC8 (1/2) DC AMP
RV13 AUTO GAIN
IC15 (1/3)
IC3 (1/2) MANUAL KNEE SET
RV4 MANU POINT
IC3 (2/2) KNEE CORR
RV5 R POINT
RV6 R SLOPE
IC8 (2/2) KNEE CORR
RV14 G POINT
RV15 G SLOPE
IC12 KNEE CORR
RV24 B POINT
RV25 B SLOPE
Q6~Q9 WHITE CLIP
RV7 R WHITE CLIP
Q22~Q25 WHITE CLIP
RV16 G WHITE CLIP
Q38~Q41 WHITE CLIP
RV26 B WHITE CLIP
Q10 VIDEO AMP
Q26 VIDEO AMP
Q42 VIDEO AMP
Q11 γ CORR
Q12 BUFFER
Q27 γ CORR
Q28 BUFFER
Q43 γ CORR
Q44 BUFFER
S1 R γ ON/OFF
S2 G γ ON/OFF
S3 B γ ON/OFF
OFF
ON
RV8 R γ CORR
RV17 G γ CORR
RV27 B γ CORR
Q13 BUFFER
Q29 BUFFER
Q45 BUFFER
D9 LEVEL SHIFT
D19 LEVEL SHIFT
D29 LEVEL SHIFT
RV9 R GAIN
RV18 G GAIN
RV28 B GAIN
MASKING
Q48, Q49, Q67 MIXER R-G/G-R
RV30 R-G
Q50 R-G BUFFER
RV29 G-R
Q51 G-R BUFFER
Q52, Q53, Q68 MIXER R-B/B-R
RV32 R-B
Q54 R-B BUFFER
RV31 B-R
Q55 B-R BUFFER
Q56, Q57, Q69 MIXER G-B/B-G
RV33 G-B
Q59 G-B BUFFER
RV34 B-G
Q58 B-G BUFFER
S4 MASKING ON/OFF
OFF ON
-5V
SW-115/115A S3 OUTPUT/DCC
CHU/CCU
BAR
CAM
DCC OFF
DCC ON
14 DCC ON/OFF IN
Q60 AMP
AT 1-14
13 WHT EN IN
S5 WHITE CLIP & KNEE ON/OFF
D32
Q61 AMP
IC15 (2/3)
IC15 (3/3)
SG 1-9
33 BLKG IN
Q62, Q63 AMP
Q64 BUFFER
L4, C76 LOW PASS FILTER


Q4, Q20, Q34
NAM
NAM Y OUT 36
PS 1-30
CV1 R FREQ RESP
IC1 INV AMP
TP1
Q3 SAMPLE & HOLD
IC2
RV2 R FLR
RV3 R PED
IC3 (2/2) KNEE CORR
RV5 R POINT
RV6 R SLOPE
Q6~Q9 WHITE CLIP
RV7 R WHITE CLIP
Q10 VIDEO AMP
Q11 γ CORR
Q12 BUFFER
S1 R γ ON/OFF
OFF
ON
RV8 R γ CORR
Q13 BUFFER
D9 LEVEL SHIFT
RV9 R GAIN
IC4 INV AMP
IC5 DC AMP
Q14 SAMPLE & HOLD
R PR VIDEO OUT 18
EN 1-17
CV2 G FREQ RESP
IC6 INV AMP
TP2
Q19 SAMPLE & HOLD
IC7
RV11 G FLR
RV12 G PED
Q5, Q21, Q35, Q36
NAM
RV22 AUTO START
Q66 BUFFER
TP4
D21, Q37 LIMIT
RV23 AUTO LIMIT
D11 PEAK HOLD
IC8 (1/2) DC AMP
RV13 AUTO GAIN
IC15 (1/3)
IC3 (1/2) MANUAL KNEE SET
RV4 MANU POINT
IC8 (2/2) KNEE CORR
RV14 G POINT
RV15 G SLOPE
Q22~Q25 WHITE CLIP
RV16 G WHITE CLIP
Q26 VIDEO AMP
Q27 γ CORR
Q28 BUFFER
S2 G γ ON/OFF
RV17 G γ CORR
Q29 BUFFER
D19 LEVEL SHIFT
RV18 G GAIN
IC9 INV AMP
IC14 (1/2) DC AMP
Q30 SAMPLE & HOLD
G PR VIDEO OUT 17
EN 1-16
CV3 B FREQ RESP
IC10 INV AMP
TP3
Q33 SAMPLE & HOLD
IC11
RV20 B FLR
RV21 B PED
IC12 KNEE CORR
RV24 B POINT
RV25 B SLOPE
Q38~Q41 WHITE CLIP
RV26 B WHITE CLIP
Q42 VIDEO AMP
Q43 γ CORR
Q44 BUFFER
S3 B γ ON/OFF
RV27 B γ CORR
Q45 BUFFER
D29 LEVEL SHIFT
RV28 B GAIN
IC13 INV AMP
IC14 (2/2) DC AMP
Q46 SAMPLE & HOLD
B PR VIDEO OUT 16
EN 1-15
Q47 INV
SAMPLE (DLY OH) IN 34
IE 1-35
MASKING
RV30 R-G
Q50 R-G BUFFER
RV29 G-R
Q51 G-R BUFFER
Q48, Q49, Q67 MIXER R-G/B-R
RV32 R-B
Q54 R-B BUFFER
RV31 B-R
Q55 B-R BUFFER
Q52, Q53, Q68 MIXER R-B/B-R
RV33 G-B
Q59 G-B BUFFER
RV34 B-G
Q58 B-G BUFFER
Q56, Q57, Q69 MIXER G-B/B-G
S4 MASKING ON/OFF
OFF ON
-5V
Q60 AMP
IC15 (2/3)
IC15 (3/3)
S5 WHITE CLIP & KNEE ON/OFF
ON OFF
D32
Q61 AMP
Q62, Q63 AMP
Q64 BUFFER
L4, C76 LOW PASS FILTER

PR-78 BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

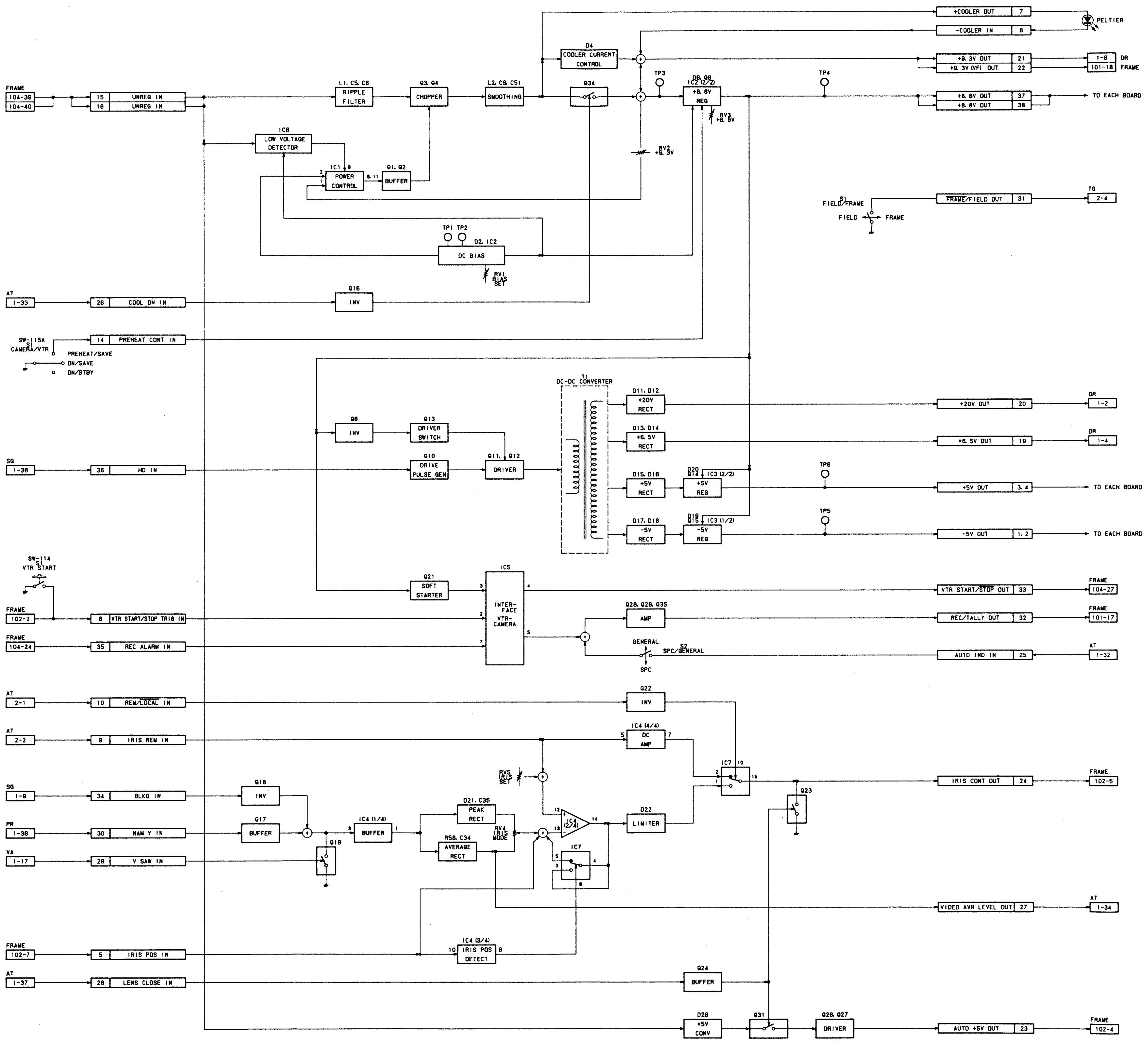
EN-69/69P BLOCK


FRAME
AT
RG
104-7
1-8
3-9
104-8
1-9
3-8
104-9
1-10
3-10
7
R VIDEO OUT
6
G VIDEO OUT
5
B VIDEO OUT
PR
1-18
17
R PR VODEO IN
PR
1-17
16
G PR VIDEO IN
PR
1-16
15
B PR VIDEO IN
AT
1-7
24
BARS EN IN
SG
1-36
34
HD IN
SG
1-22
36
BARS CK IN (X)
SG
1-9
33
BLKG IN
SG
1-24
30
SYNC IN
FRAME
104-34
20
SYNC (VTR) OUT
SG
1-28
28
BF IN
IC1
IC6
INV 2 IN
H REF IN
BAR CK IN
INV 1 IN
R OUT
G OUT
B OUT
COLOR BAR
GENERATOR
Y OUT
SETUP OUT
SETUP OUT
I OUT
Q OUT
RV6
R BAR
RV7
G BAR
RV8
B BAR
Q17
BUFFER
C53, C54
SYNC
PHASE
LV2
SYNC
PHASE
Q18
BUFFER
D2
DC
SHIFT
Q19, Q20
BUFFER
Q1, Q4
BUFFER
TP1
Q2, Q5
BUFFER
TP2
Q3, Q6
BUFFER
TP3
RP1
Y MATRIX
RV1
VBS
WHITE
(NTSC)
RV3
VBS
SET UP
(NTSC)
RV2
VBS
SYNC
RP2
Y MATRIX
RV10
COMPONE
WHITE
(NTSC)
RV9
COMPONE
SET UP
(NTSC)
RV11
COMPONE
SYNC
POWER SAVE CIRCUIT
IC2
INV
AMP
BUFFER
SAMPLE
& HOLD
DL1
790nS
DELAY
Q7, Q8
BUFFER
IC7
INV
AMP
BUFFER
SAMPLE
& HOLD
RV12
Y VIDEO
IC8 (1/2)
INV
AMP
IC8 (2/2)
INV
AMP
IC9
ZEBRA LEVEL
DETECT
RV13
ZEBRA
Q14
ZEBRA SET
LEVEL
Q15
ZEBRA
SWITCH
ON
S3
ZEBRA
(EXT VF)
OFF
+9V
Q32
+5V
Q33
-5V
Q34
Q31
INV
Q30
INV
TP8
Q35
D3
LIMITER
& RECT
IC12
TERMINATE
DETECT
RV23
TERMINATE
SENSE
Q9
DC
BIAS
RV5
VBS
CHROMA
IC3
RV4
VBS Y
CV1
VBS FREQ
RESP
75Ω
75Ω
POWER SAVE CIRCUIT
RP5, IC11 (1/2)
I/V
MATRIX
& AMP
S1
I/R-Y
I/R-Y
(V=R-Y
U=B-Y)
RP6, IC11 (2/2)
Q/U
MATRIX
& AMP
S2
Q/B-Y
Q/B-Y
L4, C69, C70
LOW PASS
FILTER
Q21
BUFFER
DL2
410nS
DELAY
L5, C71
LOW PASS
FILTER
Q22
BUFFER
L6, C78, C79
LOW PASS
FILTER
Q26
BUFFER
RV20
Q/B-Y
RV22
BURST
PHASE
D1
BURST
SET
RV15
BURST
START
RV16
BURST
STOP
(NTSC)
RV14
BURST
Q16
BUFFER
Q23
AMP
Q24
BUFFER
Q25
CLAMP
RV19
I/R-Y
BAL
Q27
AMP
Q28
BUFFER
Q29
CLAMP
RV21
Q/B-Y
BAL
TP6
TP7
IC4
R-Y
ENCODER
CHROMA
B-Y
SC
SC
FL1
BAND PASS
FILTER
Q10
BUFFER
TP5
Q13
BUFFER
TP4
Q11
BUFFER
C18, C20
90°
SHIFT
Q12
BUFFER
LV1
SC PHASE
RP3
R-Y
MATRIX
IC10 (1/2)
AMP
DRIVER
RV17
VTR
R-Y
RP4
B-Y
MATRIX
IC10 (2/2)
AMP
DRIVER
RV18
VTR
B-Y


+9V
Q32
+5V
Q33
-5V
Q34
Q31
INV
Q30
INV
TP8
Q35
D3
LIMITER & RECT
IC12
TERMINATE DETECT
RV23 TERMINATE SENSE
Q9
DC BIAS
POWER SAVE CIRCUIT
IC1
Q1, Q4
BUFFER
TP1
Q2, Q5
BUFFER
TP2
Q3, Q6
BUFFER
TP3
RP1
Y MATRIX
RV1 VBS WHITE (NTSC)
RV3 VBS SET UP (NTSC)
RV2 VBS SYNC
IC2
INV AMP
BUFFER
SAMPLE & HOLD
DL1
790nS DELAY
Q7, Q8
BUFFER
RV4 VBS Y
CV1 VBS FREQ RESP
RV5 VBS CHROMA
IC3
75Ω
75Ω
FUNC ER IN 14
AT 1-18
VBS OUT (X) 8
FRAME 104-43
VBS (TEST) OUT (X) 9
RG 2-6
RV6 R BAR
RV7 G BAR
RV8 B BAR
RP2
Y MATRIX
RV10 COMPONE WHITE (NTSC)
RV9 COMPONE SET UP (NTSC)
RV11 COMPONE SYNC
IC7
INV AMP
BUFFER
SAMPLE & HOLD
RV12 Y VIDEO
IC8 (1/2)
INV AMP
Y VIDEO OUT (X) 21
PS 1-13
FRAME 104-41
IC8 (2/2)
INV AMP
Y (VF) VIDEO OUT 22
RG 3-5
IC9
ZEBRA LEVEL DETECT
RV13 ZEBRA
ZEBRA CK IN (X) 27
SG 1-33
D2
DC SHIFT
Q14
ZEBRA SET LEVEL
Q15
ZEBRA SWITCH
ZEBRA/AUDIO IN 23
FRAME 101-11
ON
S3 ZEBRA (EXT VF)
OFF
POWER SAVE CIRCUIT
S1
I/R-Y
RP5, IC11 (1/2)
I/V MATRIX & AMP
L4, C68, C70
LOW PASS FILTER
Q21
BUFFER
DL2
410nS DELAY
L5, C71
LOW PASS FILTER
Q22
BUFFER
Q23
AMP
Q24
BUFFER
Q25
CLAMP
TP6
RV22 BURST PHASE
RV19 I/R-Y BAL
(V=R-Y)
(U=B-Y)
IC4
R-Y
ENCODER CHROMA
B-Y
SC
SC
FL1
BAND PASS FILTER
Q10
BUFFER
S2
Q/B-Y
RP6, IC11 (2/2)
Q/U MATRIX & AMP
L6, C78, C79
LOW PASS FILTER
Q26
BUFFER
RV20 Q/B-Y
Q27
AMP
Q28
BUFFER
Q29
CLAMP
TP7
TP5
Q13
BUFFER
SC IN (X) 31
SG 1-26
RV21 Q/B-Y BAL
TP4
Q11
BUFFER
C19, C20
90° SHIFT
Q12
BUFFER
LV1 SC PHASE
D1
BURST SET
Q16
BUFFER
RV15 BURST START
RV16 BURST STOP (NTSC)
RV14 BURST
BF CLAMP IN 28
SG 1-27
RP3
R-Y MATRIX
IC10 (1/2)
AMP
DRIVER
RV17 VTR R-Y
R-Y VIDEO OUT (X) 19
PS 1-12
FRAME 104-29
RP4
B-Y MATRIX
IC10 (2/2)
AMP
DRIVER
RV18 VTR B-Y
B-Y VIDEO OUT (X) 18
PS 1-11
FRAME 104-49

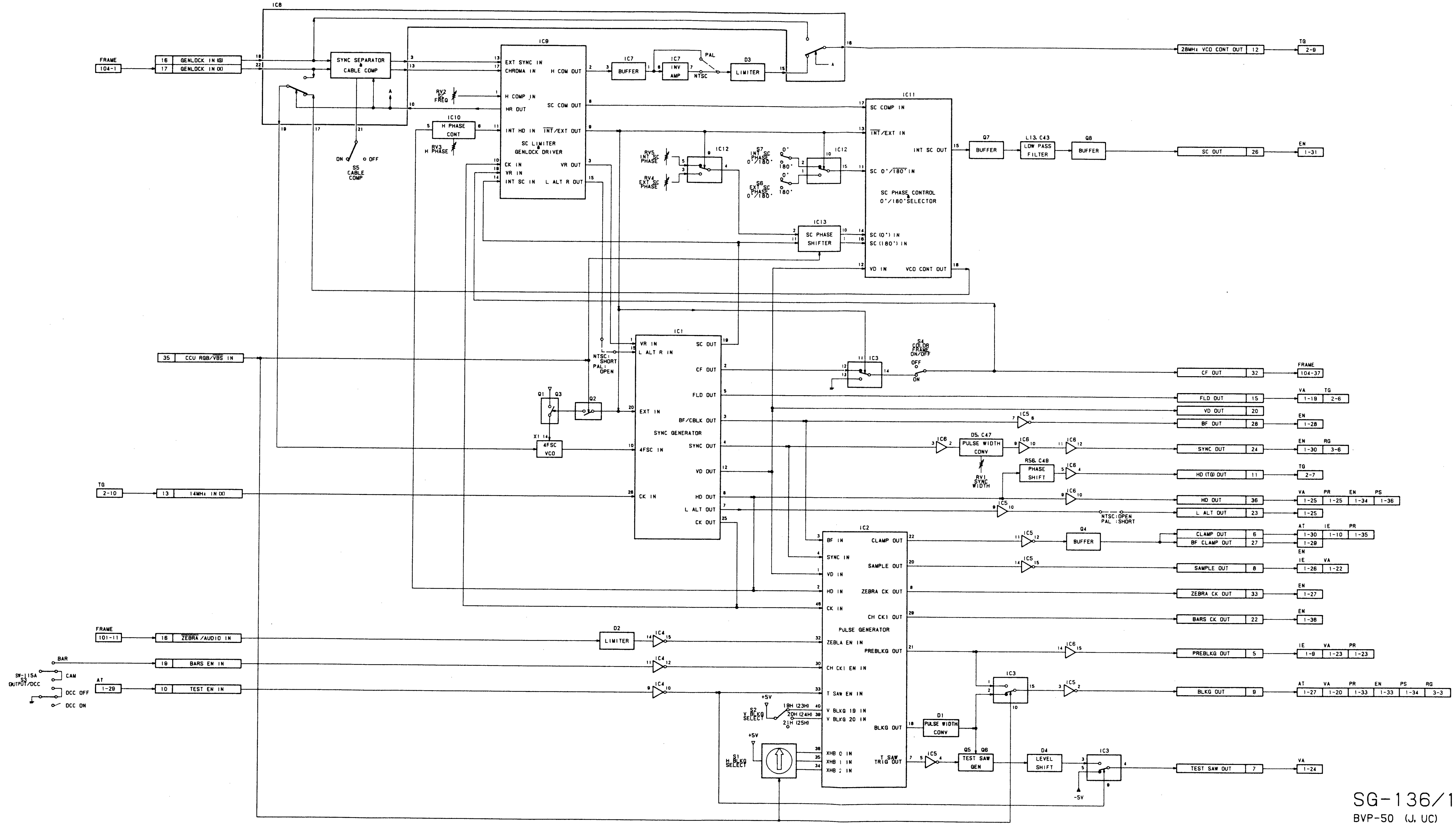
EN-69/69P BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

PS-163 BLOCK


FRAME
104-39
104-40
15 UNREG IN
16 UNREG IN
L1, C5, C6
RIPPLE FILTER
Q3, Q4
CHOPPER
L2, C9, C51
SMOOTHING
D4
COOLER CURRENT CONTROL
Q34
TP3
D6, Q9
IC2 (2/2)
+8.8V REG
RV3 +8.8V
RV2 +8.3V
TP4
+COOLER OUT 7
-COOLER IN 8
PELTIER
+8.3V OUT 21
+8.3V (VF) OUT 22
1-6 DR
101-18 FRAME
+8.8V OUT 37
+8.8V OUT 38
TO EACH BOARD
IC6
LOW VOLTAGE DETECTOR
IC1
POWER CONTROL
Q1, Q2
BUFFER
TP1 TP2
D2, IC2
DC BIAS
RV1 BIAS SET
S1 FIELD/FRAME
FIELD
FRAME
FRAME/FIELD OUT 31
TG
2-4
AT
1-33
26 COOL ON IN
Q16
INV
SW-115A S1 CAMERA/VTR
14 PREHEAT CONT IN
PREHEAT/SAVE
ON/SAVE
ON/STBY
T1 DC-DC CONVERTER
Q8
INV
Q13
DRIVER SWITCH
SG
1-36
36 HD IN
Q10
DRIVE PULSE GEN
Q11, Q12
DRIVER
D11, D12
+20V RECT
D13, D14
+6.5V RECT
D15, D16
+5V RECT
D20 Q14
IC3 (2/2)
+5V REG
D17, D18
-5V RECT
D19 Q15
IC3 (1/2)
-5V REG
TP6
TP5
+20V OUT 20
DR
1-2
+6.5V OUT 19
DR
1-4
+5V OUT 3, 4
TO EACH BOARD
-5V OUT 1, 2
TO EACH BOARD
SW-114 S1 VTR START
FRAME
102-2
8 VTR START/STOP TRIG IN
FRAME
104-24
35 REC ALARM IN
Q21
SOFT STARTER
IC5
INTER-FACE VTR-CAMERA
Q28, Q29, Q35
AMP
GENERAL
S2 SPC/GENERAL
SPC
VTR START/STOP OUT 33
FRAME
104-27
REC/TALLY OUT 32
FRAME
101-17
AUTO IND IN 25
AT
1-32
AT
2-1
10 REM/LOCAL IN
Q22
INV
AT
2-2
9 IRIS REM IN
IC4 (4/4)
DC AMP
RV5 IRIS SET
IC7
IRIS CONT OUT 24
FRAME
102-5
Q23
SG
1-9
34 BLKG IN
Q18
INV
PR
1-36
30 NAM Y IN
Q17
BUFFER
VA
1-17
29 V SAW IN
Q19
IC4 (1/4)
BUFFER
D21, C35
PEAK RECT
R58, C34
AVERAGE RECT
RV4 IRIS MODE
IC4 (2/4)
IC7
D22
LIMITER
VIDEO AVR LEVEL OUT 27
AT
1-34
FRAME
102-7
5 IRIS POS IN
IC4 (3/4)
IRIS POS DETECT
AT
1-37
28 LENS CLOSE IN
Q24
BUFFER
D26
+5V CONV
Q31
Q26, Q27
DRIVER
AUTO +5V OUT 23
FRAME
102-4

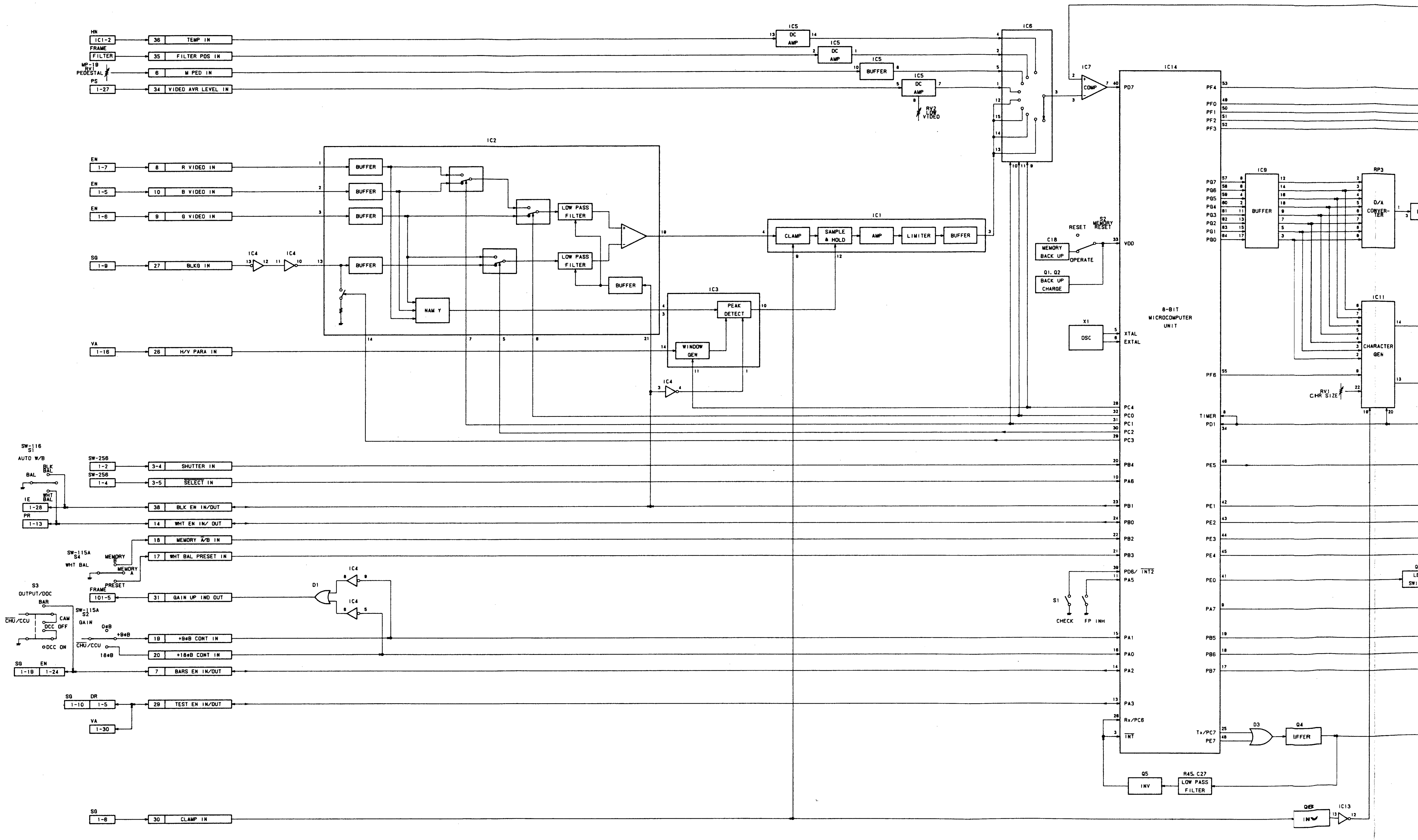
PS-163 BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

SG-136/136P BLOCK


FRAME 104-1
16 GENLOCK IN (G)
17 GENLOCK IN (X)
IC8
SYNC SEPARATOR & CABLE COMP
S5 CABLE COMP
ON
OFF
IC9
EXT SYNC IN
CHROMA IN
H COM OUT
H COMP IN
HR OUT
SC COM OUT
INT HD IN
INT/EXT OUT
SC LIMITER & GENLOCK DRIVER
CK IN
VR IN
INT SC IN
VR OUT
L ALT R OUT
RV2 SC FREQ
IC10 H PHASE CONT
RV3 H PHASE
IC7 BUFFER
IC7 INV AMP
PAL
NTSC
D3 LIMITER
A
28MHz VCO CONT OUT 12
TG 2-9
IC11
SC COMP IN
INT/EXT IN
INT SC OUT
SC 0°/180° IN
SC PHASE CONTROL & 0°/180° SELECTOR
SC (0°) IN
SC (180°) IN
VD IN
VCO CONT OUT
RV5 INT SC PHASE
RV4 EXT SC PHASE
IC12
S7 INT SC PHASE 0°/180°
S6 EXT SC PHASE 0°/180°
0°
180°
IC13 SC PHASE SHIFTER
Q7 BUFFER
L13, C43 LOW PASS FILTER
Q8 BUFFER
SC OUT 26
EN 1-31
35 CCU RGB/VBS IN
NTSC: SHORT
PAL: OPEN
Q1
Q3
Q2
X1
4FSC VCO
IC1
VR IN
L ALT R IN
EXT IN
4FSC IN
CK IN
SYNC GENERATOR
SC OUT
CF OUT
FLD OUT
BF/CBLK OUT
SYNC OUT
VD OUT
HD OUT
L ALT OUT
CK OUT
TG 2-10
13 14MHz IN (X)
IC3
S4 COLOR FRAME ON/OFF
OFF
ON
CF OUT 32
FRAME 104-37
FLD OUT 15
VA 1-19
TG 2-6
VD OUT 20
IC5
BF OUT 28
EN 1-28
IC6
D5, C47 PULSE WIDTH CONV
RV1 SYNC WIDTH
SYNC OUT 24
EN 1-30
RG 3-6
R56, C48 PHASE SHIFT
HD (TG) OUT 11
TG 2-7
HD OUT 36
VA 1-25
PR 1-25
EN 1-34
PS 1-36
L ALT OUT 23
1-25
NTSC: OPEN
PAL : SHORT
IC2
BF IN
SYNC IN
VD IN
HD IN
CK IN
ZEBLA EN IN
CH CK1 EN IN
T SAW EN IN
V BLKG 19 IN
V BLKG 20 IN
XHB 0 IN
XHB 1 IN
XHB 2 IN
CLAMP OUT
SAMPLE OUT
ZEBRA CK OUT
CH CK1 OUT
PULSE GENERATOR
PREBLKG OUT
BLKG OUT
T SAW TRIG OUT
Q4 BUFFER
CLAMP OUT 6
BF CLAMP OUT 27
AT 1-30
IE 1-10
PR 1-35
1-29
EN
SAMPLE OUT 8
IE 1-26
VA 1-22
ZEBRA CK OUT 33
EN 1-27
BARS CK OUT 22
EN 1-38
FRAME 101-11
16 ZEBRA/AUDIO IN
D2 LIMITER
IC4
BAR
19 BARS EN IN
SW-115A S3 OUTPUT/DCC
CAM
DCC OFF
DCC ON
AT 1-29
10 TEST EN IN
+5V
S2 V BLKG SELECT
19H (23H)
20H (24H)
21H (25H)
S1 H BLKG SELECT
D1 PULSE WIDTH CONV
PREBLKG OUT 5
IE 1-9
VA 1-23
PR 1-23
BLKG OUT 9
AT 1-27
VA 1-20
PR 1-33
EN 1-33
PS 1-34
RG 3-3
Q5 Q6 TEST SAW GEN
D4 LEVEL SHIFT
-5V
TEST SAW OUT 7
VA 1-24

SG-136/136P BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

AT-52 BLOCK


IC1-2
TEMP IN
FILTER POS IN
M PED IN
VIDEO AVR LEVEL IN
R VIDEO IN
B VIDEO IN
G VIDEO IN
BLKG IN
H/V PARA IN
SHUTTER IN
SELECT IN
BLK EN IN/OUT
WHT EN IN/OUT
MEMORY A/B IN
WHT BAL PRESET IN
GAIN UP IND OUT
+9dB CONT IN
+18dB CONT IN
BARS EN IN/OUT
TEST EN IN/OUT
CLAMP IN
IC2
BUFFER
LOW PASS FILTER
NAM Y
IC1
CLAMP
SAMPLE & HOLD
AMP
LIMITER
IC3
PEAK DETECT
WINDOW GEN
IC4
IC5
DC AMP
IC6
IC7
COMP
IC14
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XTAL
EXTAL
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WHT BAL
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MEMORY B
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S3 OUTPUT/DCC
BAR
CAM
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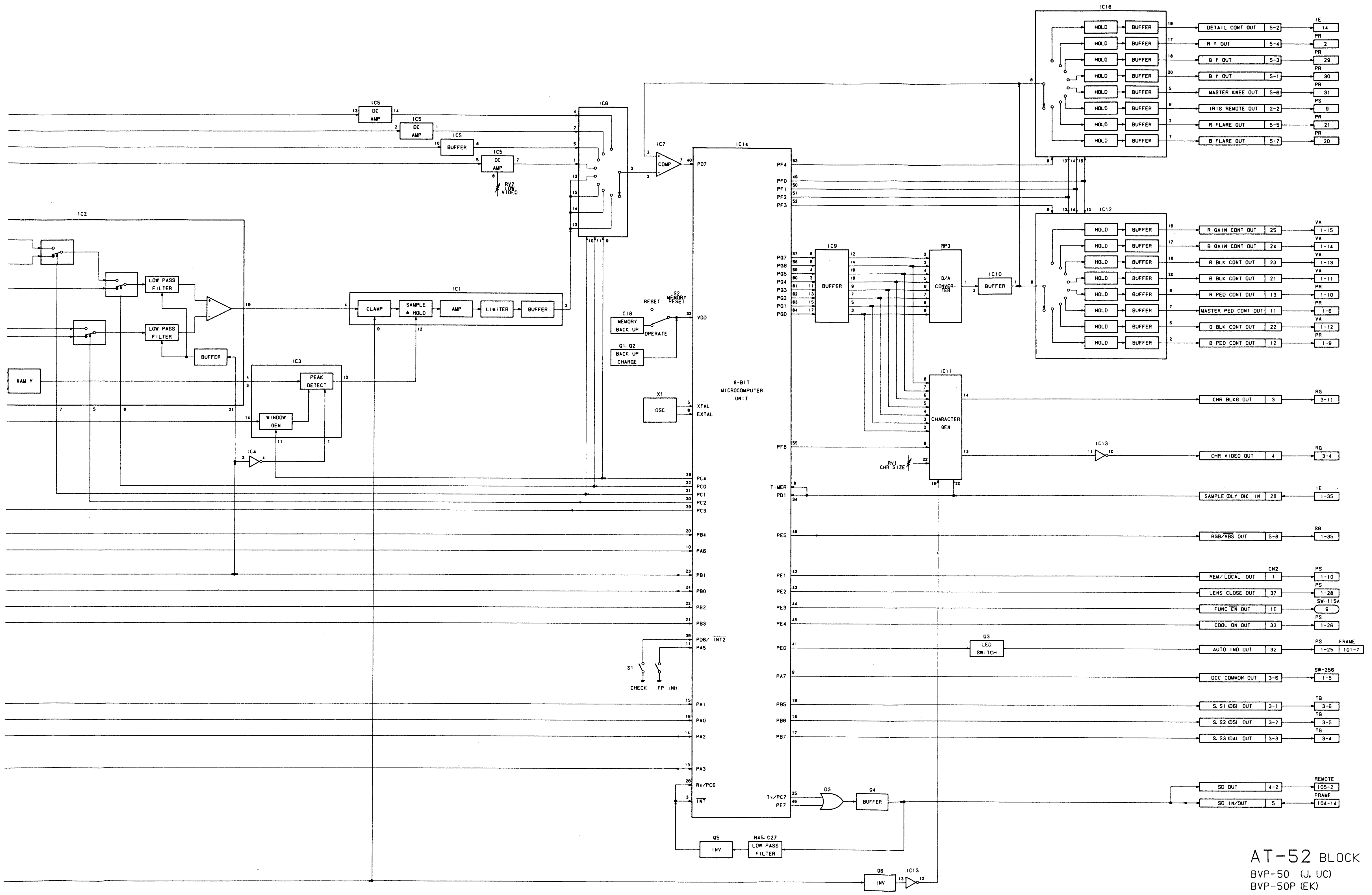
DCC ON
CHU/CCU
SW-115A S2 GAIN
0dB
+9dB
18dB
PD7
PF4
PF0
PF1
PF2
PF3
PG7
PG6
PG5
PG4
PG3
PG2
PG1
PG0
PF6
PD1
PC4
PC0
PC1
PC2
PC3
PB4
PA6
PB1
PB0
PB2
PB3
PD6/INT2
PA5
PA1
PA0
PA2
PA3
Rx/PC6
INT
PE5
PE1
PE2
PE3
PE4
PE0
PA7
PB5
PB6
PB7
Tx/PC7
PE7


IC5
DC AMP
IC5
DC AMP
IC5
BUFFER
IC5
DC AMP
RV2 LOW VIDEO
IC6
IC7
COMP
IC2
LOW PASS FILTER
LOW PASS FILTER
BUFFER
NAM Y
IC3
PEAK DETECT
WINDOW GEN
IC4
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C18
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Q1, Q2
BACK UP CHARGE
X1
OSC
IC14
8-BIT MICROCOMPUTER UNIT
PD7
VDD
XTAL
EXTAL
PC4
PC0
PC1
PC2
PC3
PB4
PA6
PB1
PB0
PB2
PB3
PD6/ INT2
PA5
S1
CHECK
FP INH
PA1
PA0
PA2
PA3
Rx/PC6
INT
PF4
PF0
PF1
PF2
PF3
PG7
PG6
PG5
PG4
PG3
PG2
PG1
PG0
PF6
TIMER
PD1
PE5
PE1
PE2
PE3
PE4
PE0
PA7
PB5
PB6
PB7
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PE7
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RP3
D/A CONVER-TER
IC10
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IC11
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RV1 CHR SIZE
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Q4
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Q5
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Q6
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VA 1-15
B GAIN CONT OUT 24
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VA 1-11
R PED CONT OUT 13
PR 1-10
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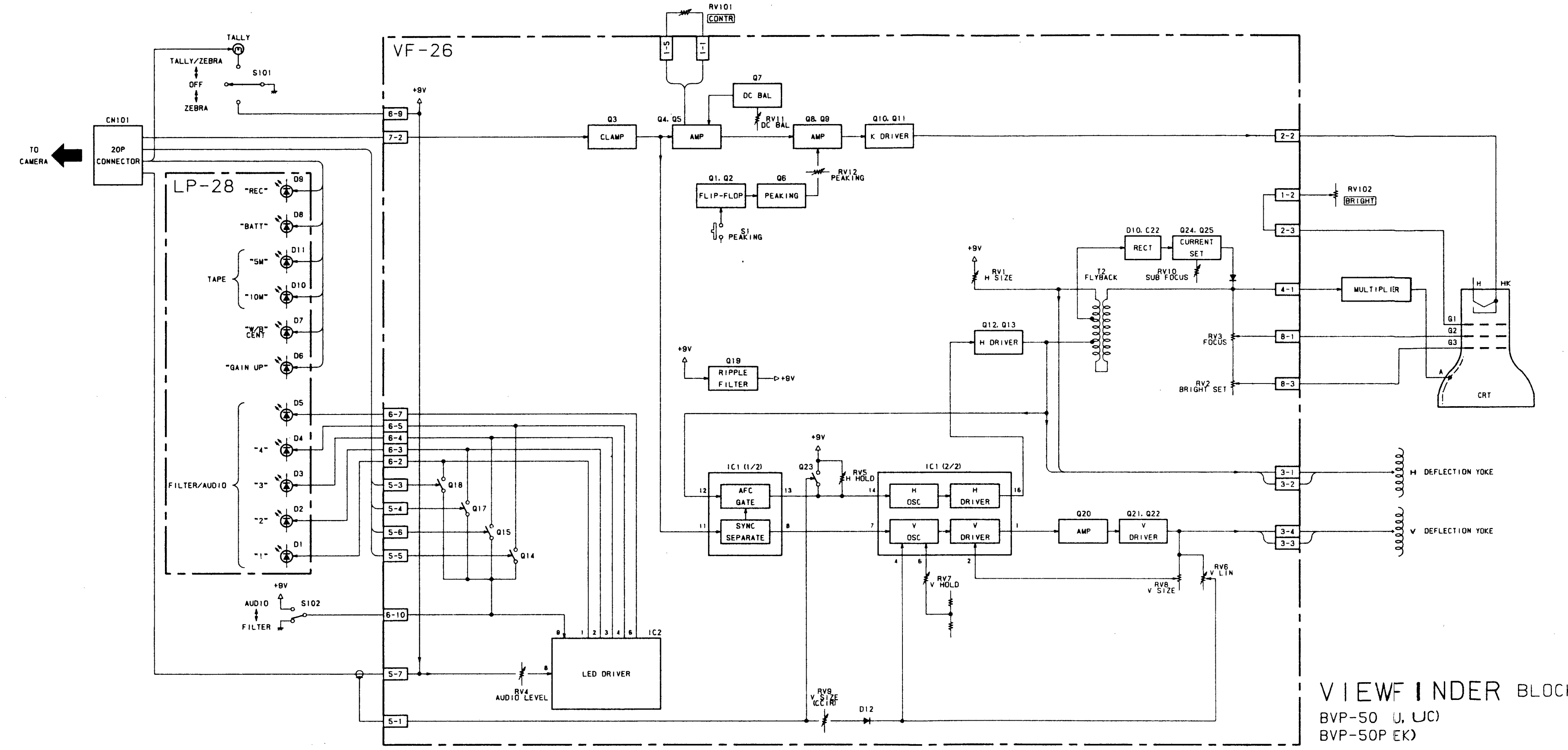
REMOTE 105-2
SD IN/OUT 5
FRAME 104-14

AT-52 BLOCK
BVP-50 (J, UC)
BVP-50P (EK)

VIEWFINDER BLOCK


TALLY
TALLY/ZEBRA
OFF
ZEBRA
S101
CN101
20P CONNECTOR
TO CAMERA
LP-28
D9 "REC"
D8 "BATT"
TAPE
D11 "5M"
D10 "10M"
D7 "W/B" CENT
D6 "GAIN UP"
FILTER/AUDIO
D5
D4 "4"
D3 "3"
D2 "2"
D1 "1"
+9V
AUDIO
FILTER
S102
VF-26
6-9
7-2
6-7
6-5
6-4
6-3
6-2
5-3
5-4
5-6
5-5
6-10
5-7
5-1
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Q17
Q15
Q14
RV4 AUDIO LEVEL
IC2
LED DRIVER
RV101 CONTR
1-5
1-1
Q3 CLAMP
Q4, Q5 AMP
Q7 DC BAL
RV11 DC BAL
Q8, Q9 AMP
Q10, Q11 K DRIVER
RV12 PEAKING
Q1, Q2 FLIP-FLOP
Q6 PEAKING
S1 PEAKING
Q19 RIPPLE FILTER
+9V
IC1 (1/2)
AFC GATE
SYNC SEPARATE
Q23
RV5 H HOLD
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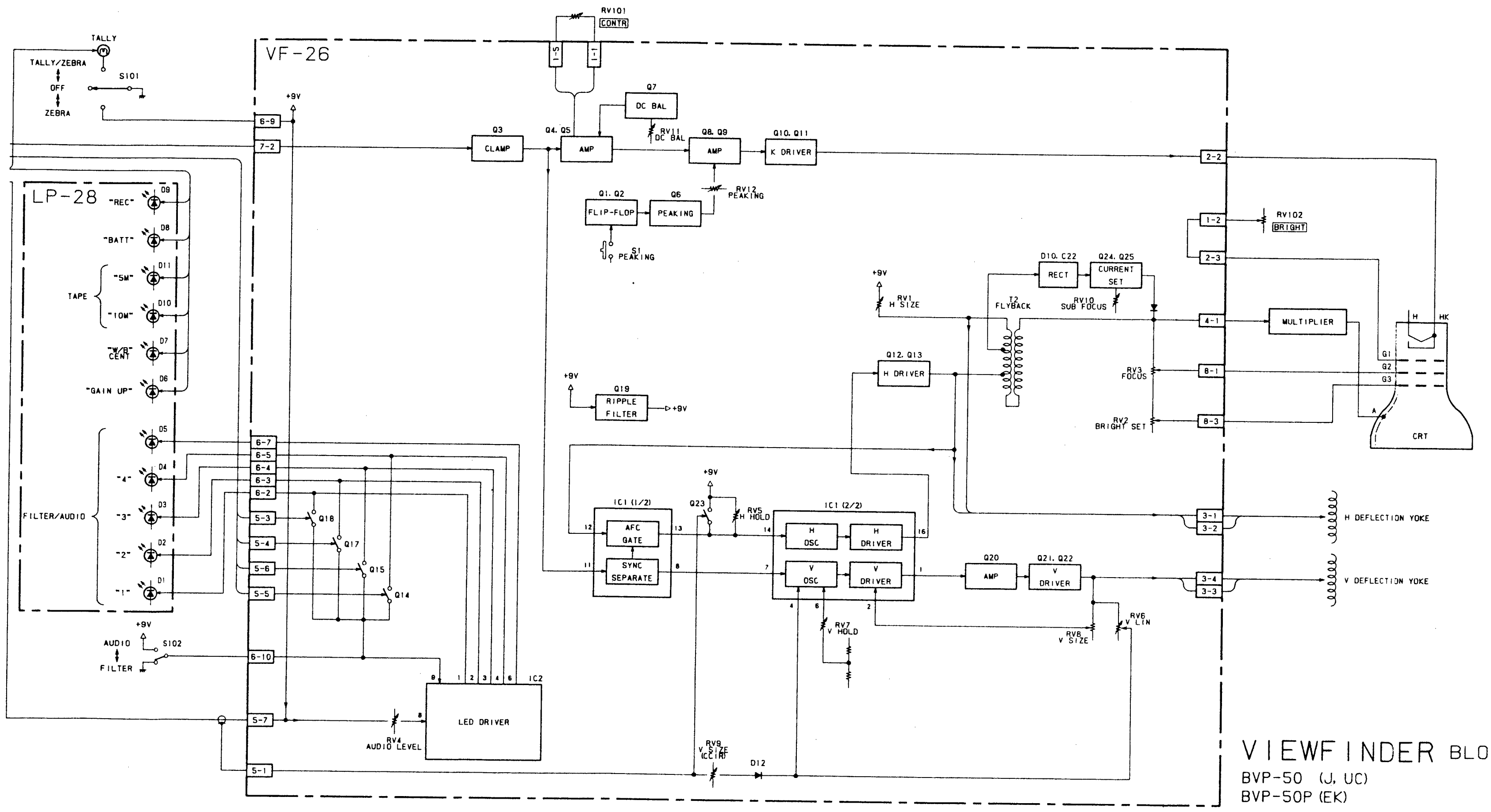
H OSC
H DRIVER
V OSC
V DRIVER
RV7 V HOLD
RV9 V SIZE (CCIR)
D12
Q12, Q13 H DRIVER
RV1 H SIZE
T2 FLYBACK
D10, C22 RECT
Q24, Q25 CURRENT SET
RV10 SUB FOCUS
RV3 FOCUS
RV2 BRIGHT SET
Q20 AMP
Q21, Q22 V DRIVER
RV8 V SIZE
RV6 V LIN
2-2
1-2
2-3
4-1
8-1
8-3
3-1
3-2
3-4
3-3
RV102 BRIGHT
MULTIPLIER
H
HK
G1
G2
G3
A
CRT
H DEFLECTION YOKE
V DEFLECTION YOKE

VIEWFINDER BLOC
BVP-50 (J, UC)
BVP-50P (EK)


VF-26
LP-28
TALLY
TALLY/ZEBRA
OFF
ZEBRA
S101
"REC"
"BATT"
TAPE
"5M"
"10M"
"W/B" CENT
"GAIN UP"
FILTER/AUDIO
"4"
"3"
"2"
"1"
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
AUDIO
FILTER
S102
+9V
RV101
CONTR
1-5
1-1
6-9
7-2
Q3
CLAMP
Q4, Q5
AMP
Q7
DC BAL
RV11
DC BAL
Q8, Q9
AMP
Q10, Q11
K DRIVER
RV12
PEAKING
Q1, Q2
FLIP-FLOP
Q6
PEAKING
S1
PEAKING
Q19
RIPPLE FILTER
+9V
6-7
6-5
6-4
6-3
6-2
5-3
5-4
5-6
5-5
6-10
5-7
5-1
Q18
Q17
Q15
Q14
IC2
LED DRIVER
RV4
AUDIO LEVEL
IC1 (1/2)
AFC GATE
SYNC SEPARATE
Q23
RV5
H HOLD
IC1 (2/2)
H OSC
H DRIVER
V OSC
V DRIVER
RV7
V HOLD
RV9
V SIZE
(CCIR)
D12
Q20
AMP
Q21, Q22
V DRIVER
RV8
V SIZE
RV6
V LIN
RV1
H SIZE
Q12, Q13
H DRIVER
T2
FLYBACK
D10, C22
RECT
Q24, Q25
CURRENT SET
RV10
SUB FOCUS
RV3
FOCUS
RV2
BRIGHT SET
2-2
1-2
2-3
4-1
8-1
8-3
3-1
3-2
3-4
3-3
RV102
BRIGHT
MULTIPLIER
H
HK
G1
G2
G3
A
CRT
H DEFLECTION YOKE
V DEFLECTION YOKE

VIEWFINDER BLOCK

BVP-50 (J, UC)
BVP-50P (EK)

SECTION 6
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

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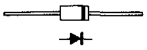
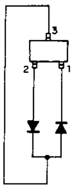
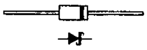
DIODE, TRANSISTOR



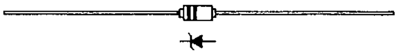
11E2
1S1555
1S1555S
1SS119



1SS123
1SS226

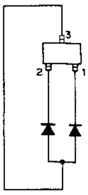


11DQ04
1SS97-1
ERB81-004



1SZ46A

TOP VIEW (SCALE 4/1)



1S2835

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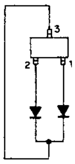

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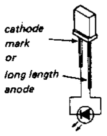
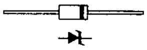
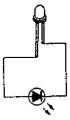

cathode mark or long length anode

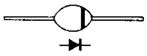
GL9NG2 ; YELLOWISH GREEN
GL9PR20 ; RED



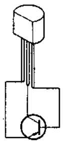
HZ ? ?ALL
HZ ? ?C ?
HZ ? ?L
HZ ? ?LL



TLG124A ; GREEN
TLO124 ; ORANGE
TLR124 ; RED

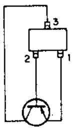


U05G
V09G
V11 ?

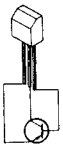


2SA1016K

TOP VIEW (SCALE 4/1)

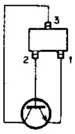


2SA1163
2SA1226
2SA812
2SB624

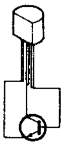


2SB733

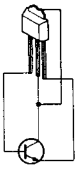
TOP VIEW (SCALE 4/1)



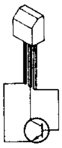
2SC1623
2SC2757
2SD596



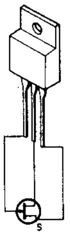
2SC2362K
2SC641K



2SD1083L

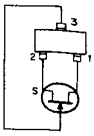


2SD773

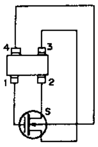


2SK591

TOP VIEW (SCALE 4/1)

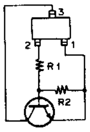


2SK94-T1X3



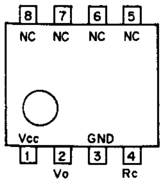
3SK163

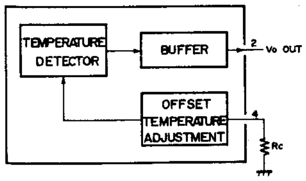
TOP VIEW (SCALE 4/1)



DTC144WK (R1=47K, R2=22K)

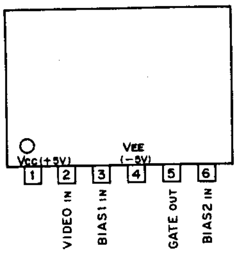
AN6701S (MATSUSHITA) FLAT PACKAGE
TEMPERATURE SENSING
— TOP VIEW —

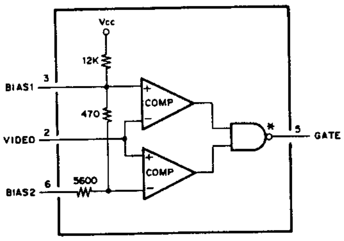

8
7
6
5
NC
NC
NC
NC
Vcc
GND
1
2
3
4
Vo
Rc


TEMPERATURE DETECTOR
BUFFER
2
Vo OUT
OFFSET TEMPERATURE ADJUSTMENT
4
Rc

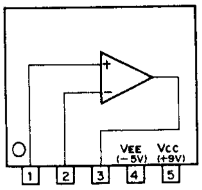
Rc: RESISTOR FOR CALIBRATION

BH1213 (SONY)
VIDEO LEVEL DETECTOR
— PRINTED SIDE VIEW —

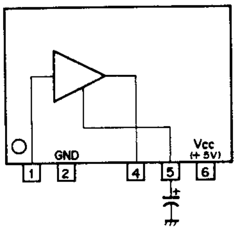

Vcc(+5V)
VEE (−5V)
1
2
3
4
5
6
VIDEO IN
BIAS1 IN
GATE OUT
BIAS2 IN


Vcc
12K
BIAS1
3
COMP
470
VIDEO
2
*
5
GATE
COMP
BIAS2
6
5600

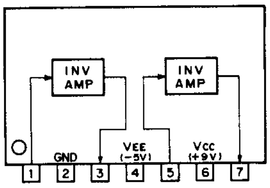
BH1210 (SONY)
VIDEO AMPLIFIER
— PRINTED SIDE VIEW —


VEE (−5V)
Vcc (+9V)
1
2
3
4
5

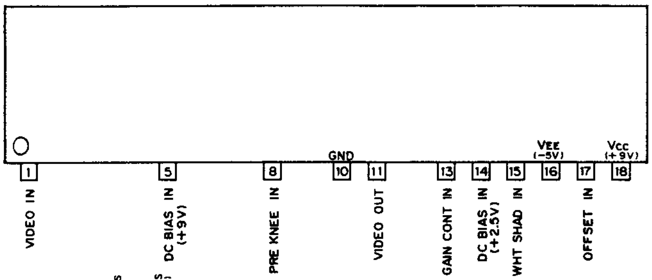
BH1211 (SONY)
VIDEO DRIVER
— PRINTED SIDE VIEW —

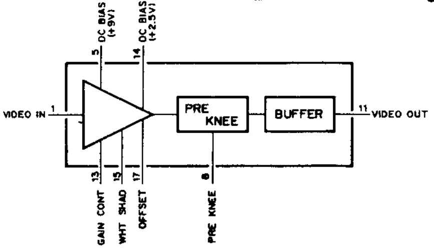

GND
Vcc (+5V)
1
2
4
5
6

BH1214 (SONY)
DUAL VIDEO INV. AMPLIFIER
— PRINTED SIDE VIEW —

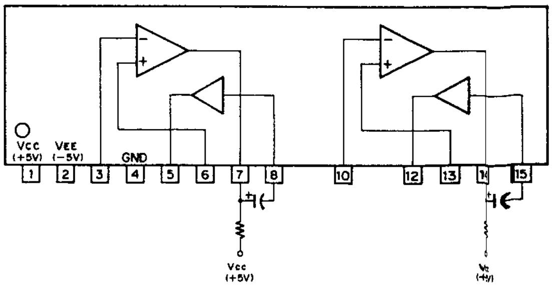

INV AMP
INV AMP
GND
VEE (−5V)
Vcc (+9V)
1
2
3
4
5
6
7

BH1212A (SONY)
GAIN CONT AMPLIFIER
— PRINTED SIDE VIEW —

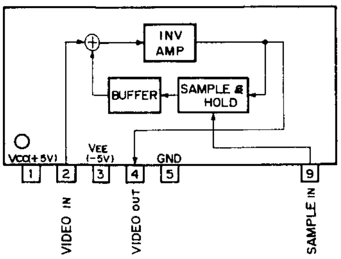

GND
VEE (−5V)
Vcc (+9V)
1
5
8
10
11
13
14
15
16
17
18
VIDEO IN
DC BIAS IN (+9V)
PRE KNEE IN
VIDEO OUT
GAIN CONT IN
DC BIAS IN (+2.5V)
WHT SHAD IN
OFFSET IN


DC BIAS (+9V)
DC BIAS (+2.5V)
5
14
VIDEO IN
1
PRE KNEE
BUFFER
11
VIDEO OUT
13
15
17
8
GAIN CONT
WHT SHAD
OFFSET
PRE KNEE

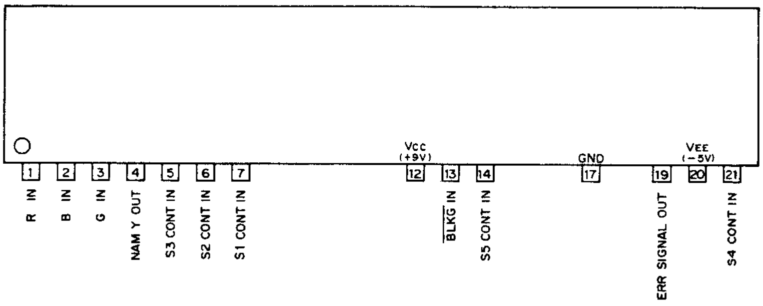
BH1215A (SONY)
VIDEO AMPLIFIER AND DRIVER
— PRINTED SIDE VIEW —

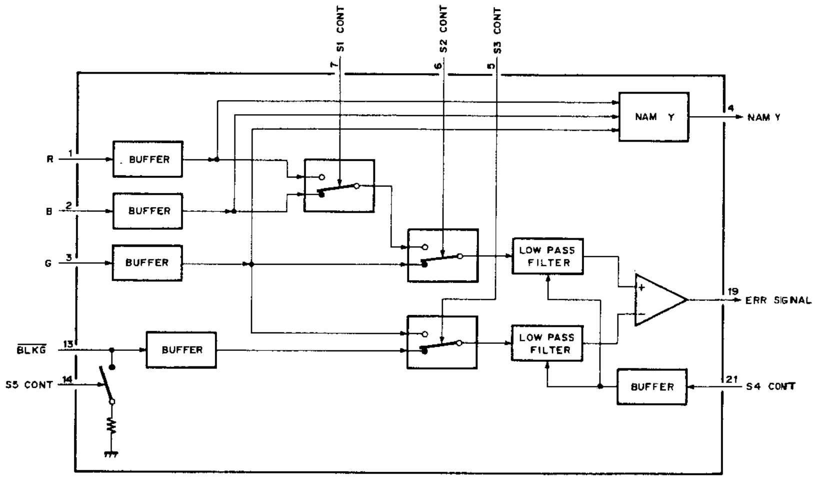

Vcc (+5V)
VEE (−5V)
GND
1
2
3
4
5
6
7
8
10
12
13
14
15
Vcc (+5V)

BH1216 (SONY)
VIDEO AMPLIFIER WITH CLAMP
— PRINTED SIDE VIEW —

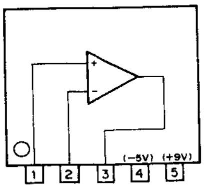

INV AMP
BUFFER
SAMPLE & HOLD
Vcc(+5V)
VEE (-5V)
GND
1
2
3
4
5
9
VIDEO IN
VIDEO OUT
SAMPLE IN

BH1220 (SONY)
VIDEO SWITCHER AND ERROR SIGNAL GENERATER
— PRINTED SIDE VIEW —

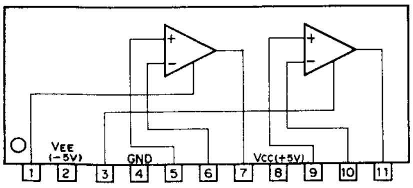

Vcc (+9V)
GND
VEE (-5V)
1
2
3
4
5
6
7
12
13
14
17
19
20
21
R IN
B IN
G IN
NAM Y OUT
S3 CONT IN
S2 CONT IN
S1 CONT IN
BLKG IN
S5 CONT IN
ERR SIGNAL OUT
S4 CONT IN


S1 CONT
S2 CONT
S3 CONT
7
6
5
R
B
G
BLKG
S5 CONT
1
2
3
13
14
BUFFER
BUFFER
BUFFER
BUFFER
NAM Y
4
NAM Y
LOW PASS FILTER
LOW PASS FILTER
19
ERR SIGNAL
BUFFER
21
S4 CONT

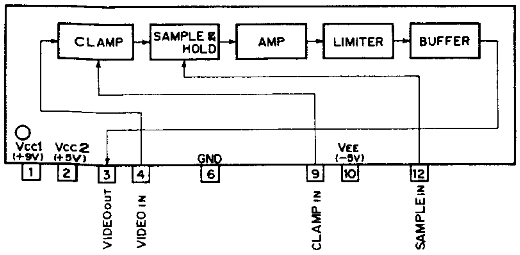
BH1217 (SONY)
VIDEO AMPLIFIER
— PRINTED SIDE VIEW —



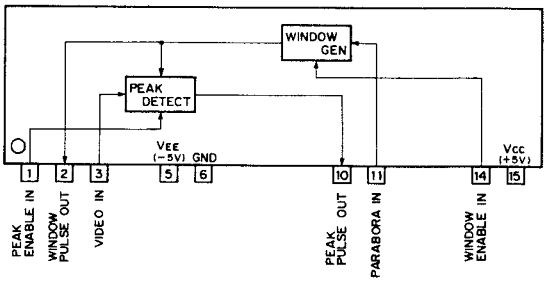
BH1218 (SONY)
VIDEO AMPLIFIER
— PRINTED SIDE VIEW —


VEE (-5V)
GND
Vcc(+5V)
1
2
3
4
5
6
7
8
9
10
11

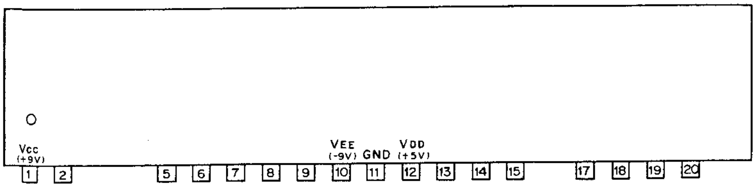
BH1219A (SONY)
VIDEO DC CONVERTER
— PRINTED SIDE VIEW —


CLAMP
SAMPLE & HOLD
AMP
LIMITER
BUFFER
Vcc1 (+9V)
Vcc2 (+5V)
GND
VEE (-5V)
1
2
3
4
6
9
10
12
VIDEOout
VIDEO IN
CLAMP IN
SAMPLE IN

BH1221 (SONY)
SAMPLE PULSE GENERATOR
— PRINTED SIDE VIEW —

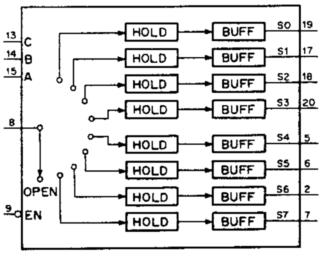

WINDOW GEN
PEAK DETECT
VEE (-5V)
GND
Vcc (+5V)
1
2
3
5
6
10
11
14
15
PEAK ENABLE IN
WINDOW PULSE OUT
VIDEO IN
PEAK PULSE OUT
PARABORA IN
WINDOW ENABLE IN

BX1179 (SONY)
8-CHANNEL SELECTABLE SAMPLING HOLDER
— PRINTED SIDE —

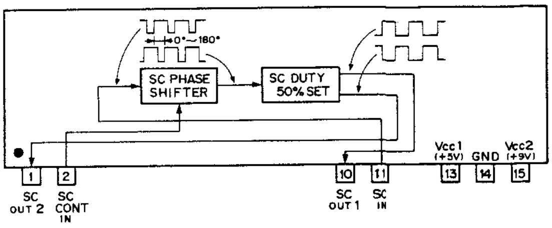

Vcc (+9V)
VEE (-9V)
GND
VDD (+5V)
1
2
5
6
7
8
9
10
11
12
13
14
15
17
18
19
20

EN	C	B	A	"ON" CHANNEL
0	0	0	0	S0
0	0	0	1	S1
0	0	1	0	S2
0	0	1	1	S3
0	1	0	0	S4
0	1	0	1	S5
0	1	1	0	S6
0	1	1	1	S7
1	X	X	X	OPEN

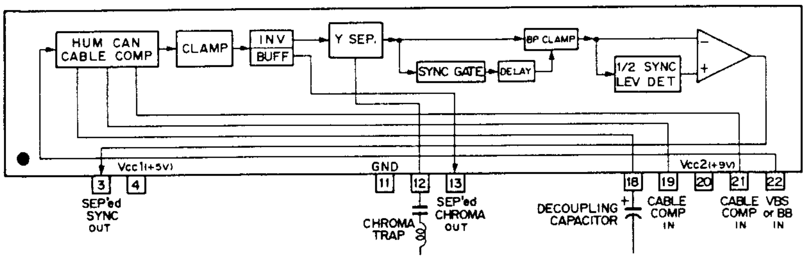
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE


13 C
14 B
15 A
8
OPEN
9 EN
HOLD
BUFF
S0 19
S1 17
S2 18
S3 20
S4 5
S5 6
S6 2
S7 7

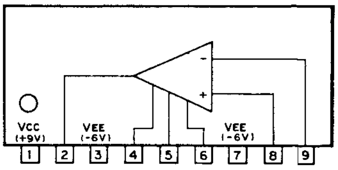
BX1339A (SONY)
SC PHASE SHIFTER
— REAR VIEW —


0°~180°
SC PHASE SHIFTER
SC DUTY 50% SET
Vcc1 (+5V)
GND
Vcc2 (+9V)
1
2
10
11
13
14
15
SC OUT 2
SC CONT IN
SC OUT 1
SC IN

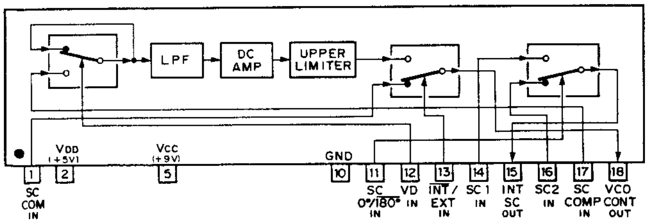
BX1337 (SONY)
SYNC SEPARATOR
— REAR VIEW —


HUM CAN CABLE COMP
CLAMP
INV BUFF
Y SEP.
BP CLAMP
SYNC GATE
DELAY
1/2 SYNC LEV DET
Vcc1(+5V)
GND
Vcc2(+9V)
3
4
11
12
13
18
19
20
21
22
SEP'ed SYNC OUT
CHROMA TRAP
SEP'ed CHROMA OUT
DECOUPLING CAPACITOR
CABLE COMP IN
CABLE COMP IN
VBS or BB IN

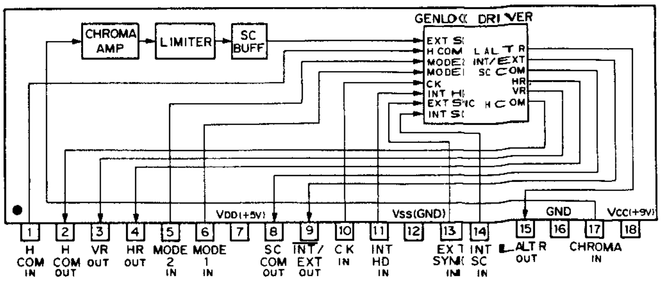
BX1356 (SONY)
VIDEO OUTPUT AMPLIFIER
— PRINTED SIDE —


Vcc (+9V)
VEE (-6V)
VEE (-6V)
1
2
3
4
5
6
7
8
9

BX1338 (SONY)
APC AMPLIFIER AND SC 0°/180° SELECTOR
— REAR VIEW —


LPF
DC AMP
UPPER LIMITER
VDD (+5V)
Vcc (+9V)
GND
1
2
5
10
11
12
13
14
15
16
17
18
SC COM IN
SC 0°/180° IN
VD IN
INT/EXT IN
SC 1 IN
INT SC OUT
SC2 IN
SC COMP IN
VCO CONT OUT

BX1340 (SONY)
SC LIMITER AND GENLOCK DRIVER
— REAR VIEW —

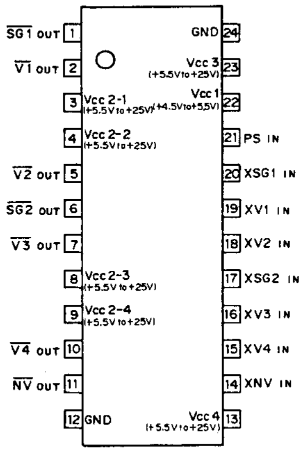

CHROMA AMP
LIMITER
SC BUFF
GENLOCK DRIVER
EXT SC
H COM
MODE2
MODE1
CK
INT HD
EXT SYNC
INT SC
ALTR
INT/EXT
SC COM
HR
VR
H COM
VDD(+5V)
Vss(GND)
GND
Vcc(+9V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
H COM IN
H COM OUT
VR OUT
HR OUT
MODE 2 IN
MODE 1 IN
SC COM OUT
INT/EXT OUT
CK IN
INT HD IN
EXT SYNC IN
INT SC IN
ALT R OUT
CHROMA IN

MODE SELECTION

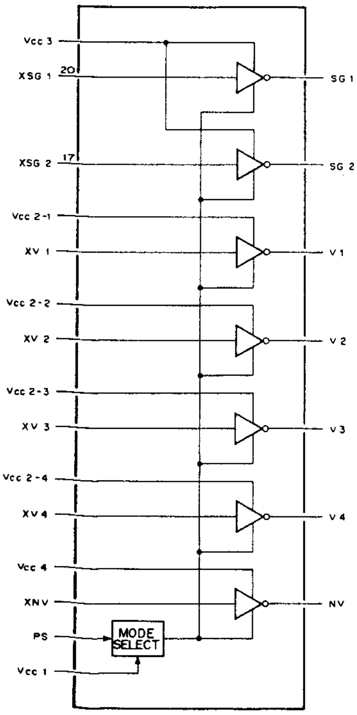
MODE 1	MODE 2	MODE
1	1	NTSC
0	0	PAL

0 ; LOW LEVEL
1 ; HIGH LEVEL

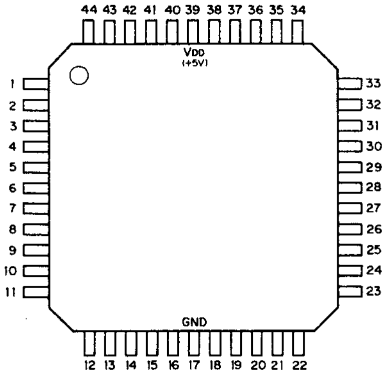
CXA1065M (SONY) FLAT PACKAGE
INVERTING DRIVER FOR CCD CLOCK WITH POWER SAVE
— TOP VIEW —

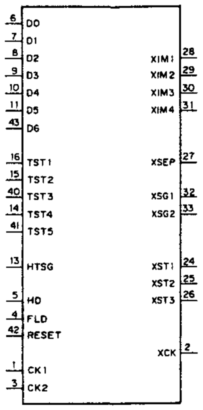

$\overline{\text{SG1}}$ OUT 1
$\overline{\text{V1}}$ OUT 2
3 Vcc 2-1 (+5.5V to +25V)
4 Vcc 2-2 (+5.5V to +25V)
$\overline{\text{V2}}$ OUT 5
$\overline{\text{SG2}}$ OUT 6
$\overline{\text{V3}}$ OUT 7
8 Vcc 2-3 (+5.5V to +25V)
9 Vcc 2-4 (+5.5V to +25V)
$\overline{\text{V4}}$ OUT 10
$\overline{\text{NV}}$ OUT 11
12 GND
GND 24
Vcc 3 (+5.5V to +25V) 23
Vcc 1 (+4.5V to +5.5V) 22
21 PS IN
20 XSG1 IN
19 XV1 IN
18 XV2 IN
17 XSG2 IN
16 XV3 IN
15 XV4 IN
14 XNV IN
Vcc 4 (+5.5V to +25V) 13

XV1 - XV4 ; VERTICAL REGISTER TRANSMISSION CLOCK INPUT
$\overline{\text{V1}}$ - $\overline{\text{V4}}$; VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT
XSG1 , XSG2 ; SENSER GATE PULSE INPUT
$\overline{\text{SG1}}$, $\overline{\text{SG2}}$; SENSER GATE PULSE OUTPUT
XNV ; DRIVER INPUT
$\overline{\text{NV}}$; DRIVER OUTPUT
PS ; POWER SAVE INPUT
Vcc 1 ; BIAS VOLTAGE
Vcc 2-1 ; $\overline{\text{V1}}$ OUTPUT PULSE VOLTAGE
Vcc 2-2 ; $\overline{\text{V2}}$ OUTPUT PULSE VOLTAGE
Vcc 2-3 ; $\overline{\text{V3}}$ OUTPUT PULSE VOLTAGE
Vcc 2-4 ; $\overline{\text{V4}}$ OUTPUT PULSE VOLTAGE
Vcc 3 ; $\overline{\text{SG1}}$, $\overline{\text{SG2}}$ OUTPUT PULSE VOLTAGE
Vcc 4 ; $\overline{\text{NV}}$ OUTPUT PULSE VOLTAGE


Vcc 3
XSG 1
20
SG 1
XSG 2
17
SG 2
Vcc 2-1
XV 1
V 1
Vcc 2-2
XV 2
V 2
Vcc 2-3
XV 3
V 3
Vcc 2-4
XV 4
V 4
Vcc 4
XNV
NV
PS
MODE SELECT
Vcc 1

CXD1116AQ (SONY)
C-MOS TIMING PULSE GENERATOR WITH CX7930 FOR CCD CAMERA
— TOP VIEW —


44 43 42 41 40 39 38 37 36 35 34
VDD (+5V)
1
2
3
4
5
6
7
8
9
10
11
33
32
31
30
29
28
27
26
25
24
23
GND
12 13 14 15 16 17 18 19 20 21 22


6 D0
7 D1
8 D2
9 D3
10 D4
11 D5
43 D6
16 TST1
15 TST2
40 TST3
14 TST4
41 TST5
13 HTSG
5 HD
4 FLD
42 RESET
1 CK1
3 CK2
XIM1 28
XIM2 29
XIM3 30
XIM4 31
XSEP 27
XSG1 32
XSG2 33
XST1 24
XST2 25
XST3 26
XCK 2

CK1,CK2 ; CLOCK INPUT
XCK ; INVERTED CLOCK OUTPUT
FLD ; FIELD PULSE INPUT
HD ; HORIZONTAL DRIVE INPUT
D0~D6 ; EXTERNAL ROM DATA INPUT
HTSG ; READ OUT STOP SIGNAL INPUT
TST1~TST5 ; TEST SIGNAL INPUT
XST1~XST3 ; CLOCK OUTPUT FOR ST REGISTOR DRIVE OF CCD
XSEP ; CLOCK OUTPUT FOR SEP GATE DRIVE OF CCD
XIM1~XIM4 ; CLOCK OUTPUT FOR IM REGISTOR DRIVE OF CCD
XSG1,XSG2 ; CLOCK OUTPUT FOR READ OUT FROM IMAGE SENSOR
RESET ; RESET BY LOW

MODE SELECTION1

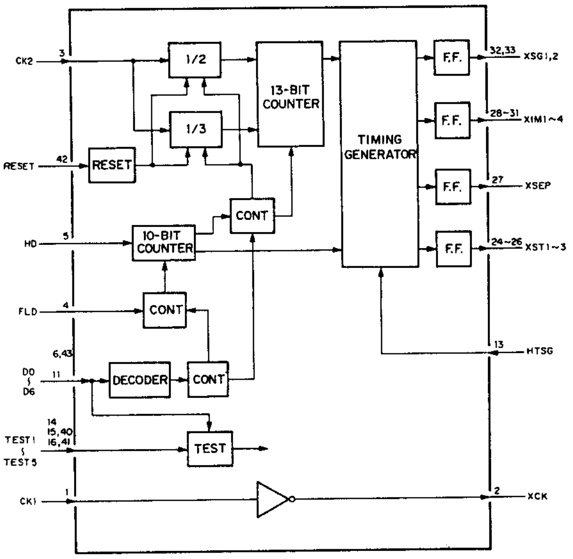
D0	D1	D2	NTSC/CCIR	FIELD/FRAME	TEST/OPE
0	0	0	CCIR	FRAME	TEST MODE
0	0	1	CCIR	FIELD	
0	1	0	NTSC	FRAME	
0	1	1	NTSC	FIELD	
1	0	0	CCIR	FRAME	OPERATE MODE
1	0	1	CCIR	FIELD	
1	1	0	NTSC	FRAME	
1	1	1	NTSC	FIELD	

0 ; LOW LEVEL
1 ; HIGH LEVEL

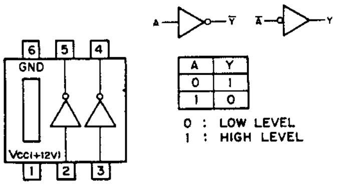
MODE SELECTION2(SHUTTER SPEED)

D3	D4	D5	D6	NTSC	CCIR
0	0	0	X	1/2000S	1/1600S
0	0	1	X	1/1000S	1/800S
0	1	0	X	1/500S	1/400S
0	1	1	X	1/250S	1/200S
1	0	0	X	1/175S	1/150S
1	0	1	X	1/125S	1/100S
1	1	0	X	1/100S	1/60S
1	1	1	0	*1	*1
1	1	1	1	*2	*2

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
*1, FRAME SHIFT MODE1
*2 ; FRAME SHIFT MODE2


CK2
3
1/2
1/3
13-BIT COUNTER
TIMING GENERATOR
F.F.
32,33
XSG1,2
28~31
XIM1~4
27
XSEP
24~26
XST1~3
RESET
42
RESET
HD
5
10-BIT COUNTER
CONT
FLD
4
CONT
6,43
D0 ~ D6
11
DECODER
CONT
13
HTSG
14
15,40
16,41
TEST1 ~ TEST5
TEST
CK1
1
2
XCK

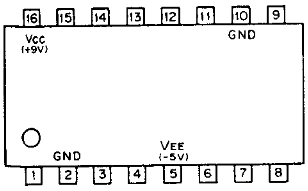
CX20011 (SONY)
HIGH SPEED INVERTING DRIVER
(C-MOS AND TTL COMPATIBLE)
— TOP VIEW —

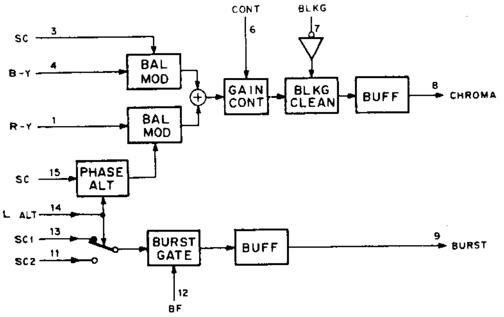

A
$\overline{Y}$
$\overline{A}$
Y
6
5
4
GND
Vcc(+12V)
1
2
3

A	Y
0	1
1	0

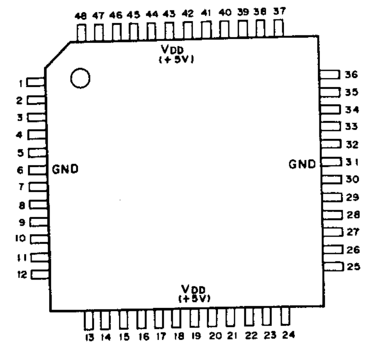
0 : LOW LEVEL
1 : HIGH LEVEL

CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
— TOP VIEW —


16
15
14
13
12
11
10
9
Vcc (+9V)
GND
GND
VEE (-5V)
1
2
3
4
5
6
7
8


SC
3
B-Y
4
BAL MOD
R-Y
1
BAL MOD
SC
15
PHASE ALT
L ALT
14
SC1
13
SC2
11
CONT
6
GAIN CONT
BLKG
7
BLKG CLEAN
BUFF
8
CHROMA
BURST GATE
12
BF
BUFF
9
BURST

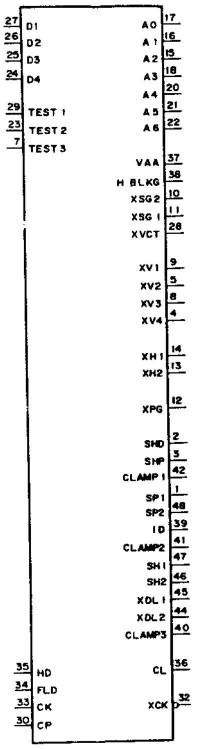
CX23047B (SONY) FLAT PACKAGE
C-MOS TIMING PULSE GENERATOR WITH CX7930 FOR CCD CAMERA
— TOP VIEW —

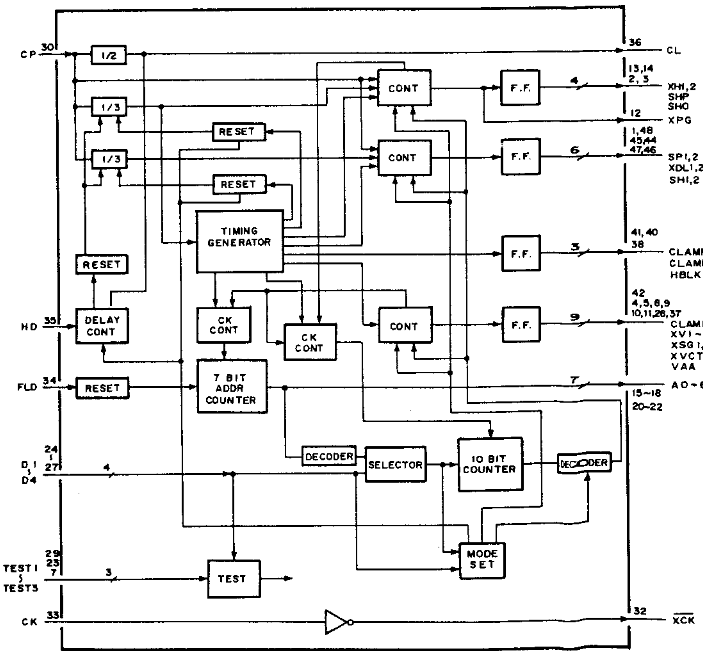

48 47 46 45 44 43 42 41 40 39 38 37
VDD (+5V)
1
2
3
4
5
6
7
8
9
10
11
12
GND
GND
36
35
34
33
32
31
30
29
28
27
26
25
VDD (+5V)
13 14 15 16 17 18 19 20 21 22 23 24

D1 — D4 ; EXTERNAL ROM DATA INPUT
A0 — A6 ; EXTERNAL ROM ADDRESS OUTPUT

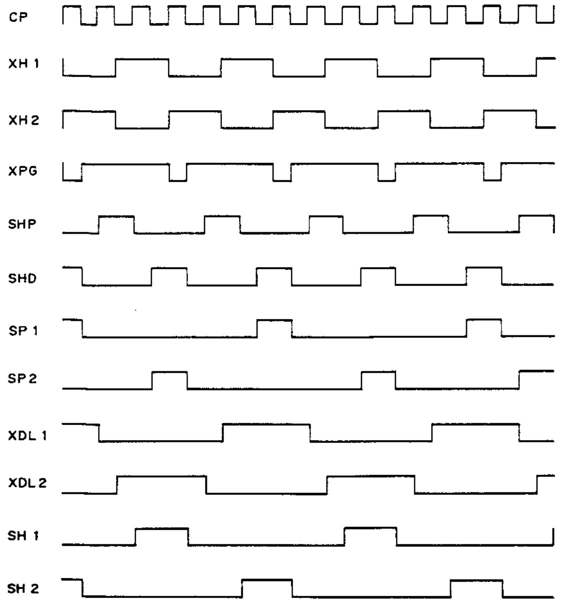
MODE SELECTION WITHOUT ROM

DATA INPUT				MODE	
D1	D2	D3	D4		
GND	GND	VDD	GND	B/W	CCIR
GND	GND	VDD	VDD		NTSC
GND	VDD	VDD	GND	COLOR	CCIR
GND	VDD	VDD	VDD		NTSC

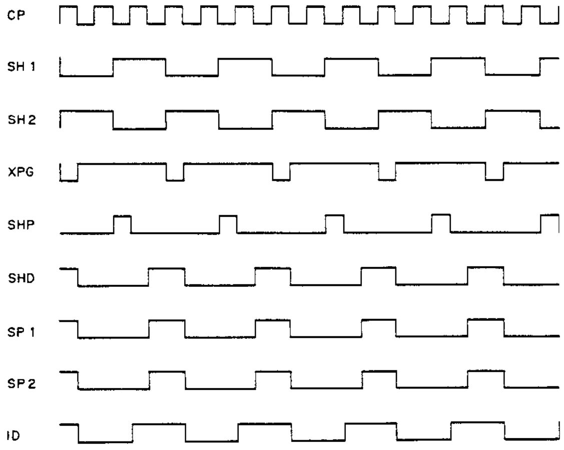

27
D1
26
D2
25
D3
24
D4
29
TEST 1
23
TEST 2
7
TEST 3
35
HD
34
FLD
33
CK
30
CP
A0
17
A1
16
A2
15
A3
18
A4
20
A5
21
A6
22
VAA
37
H BLKG
38
XSG2
10
XSG1
11
XVCT
28
XV1
9
XV2
5
XV3
8
XV4
4
XH1
14
XH2
13
XPG
12
SHD
2
SHP
3
CLAMP1
42
SP1
1
SP2
48
ID
39
CLAMP2
41
SH1
47
SH2
46
XDL1
45
XDL2
44
CLAMP3
40
CL
36
XCK
32


CP
30
1/2
1/3
1/3
RESET
RESET
TIMING GENERATOR
RESET
HD
35
DELAY CONT
CK CONT
CK CONT
7 BIT ADDR COUNTER
FLD
34
RESET
CONT
CONT
CONT
F.F.
F.F.
F.F.
F.F.
36
CL
4
13,14
2,3
XH1,2
SHP
SHO
12
XPG
6
1,48
45,44
47,46
SP1,2
XDL1,2
SH1,2
3
41,40
38
CLAMP2
CLAMP3
HBLK
9
42
4,5,8,9
10,11,28,37
CLAMP1
XV1~4
XSG1,2
XVCT
VAA
7
A0~6
15~18
20~22
D1 ~ D4
24 ~ 27
4
DECODER
SELECTOR
10 BIT COUNTER
DECODER
MODE SET
TEST1 ~ TEST3
29
23
7
3
TEST
CK
33
32
$\overline{XCK}$

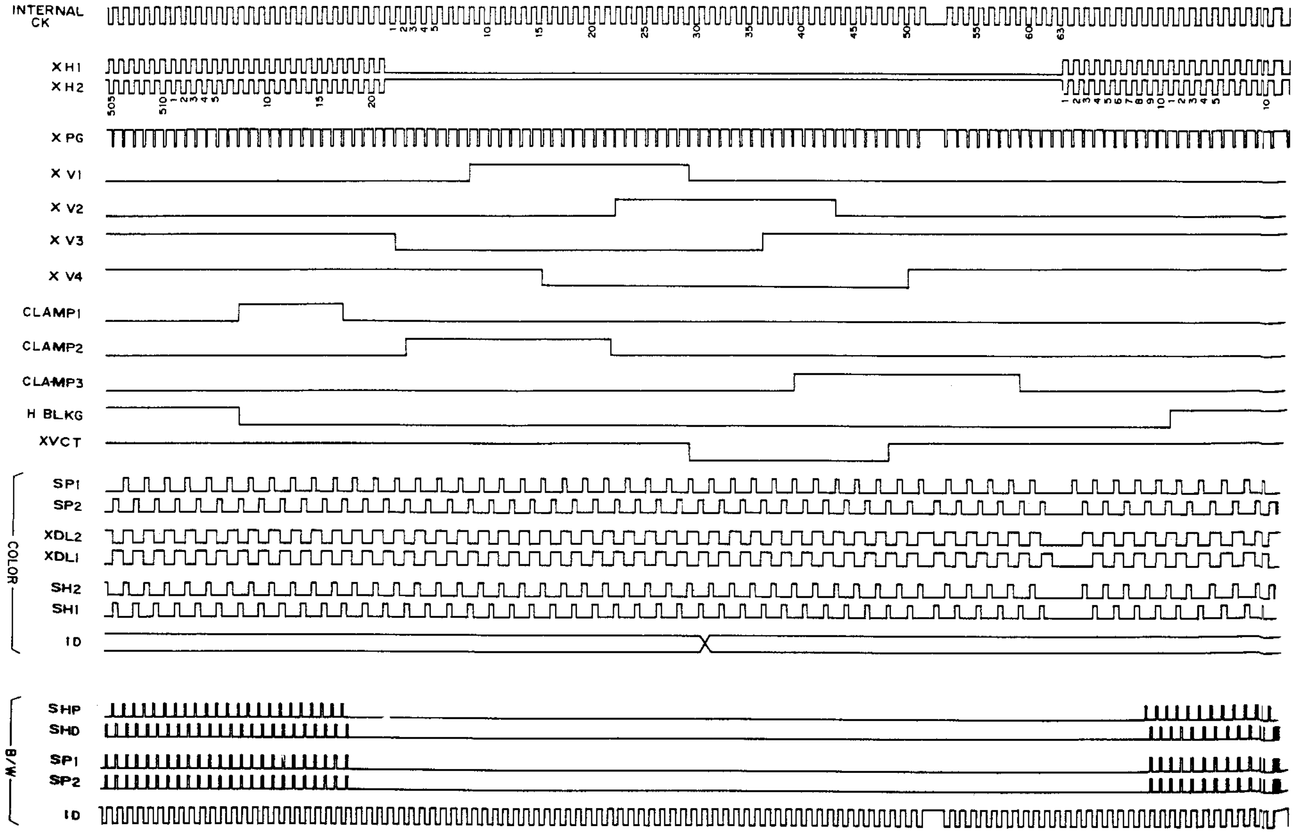
(COLOR ROM OFF)


CP
XH 1
XH 2
XPG
SHP
SHD
SP 1
SP2
XDL 1
XDL 2
SH 1
SH 2

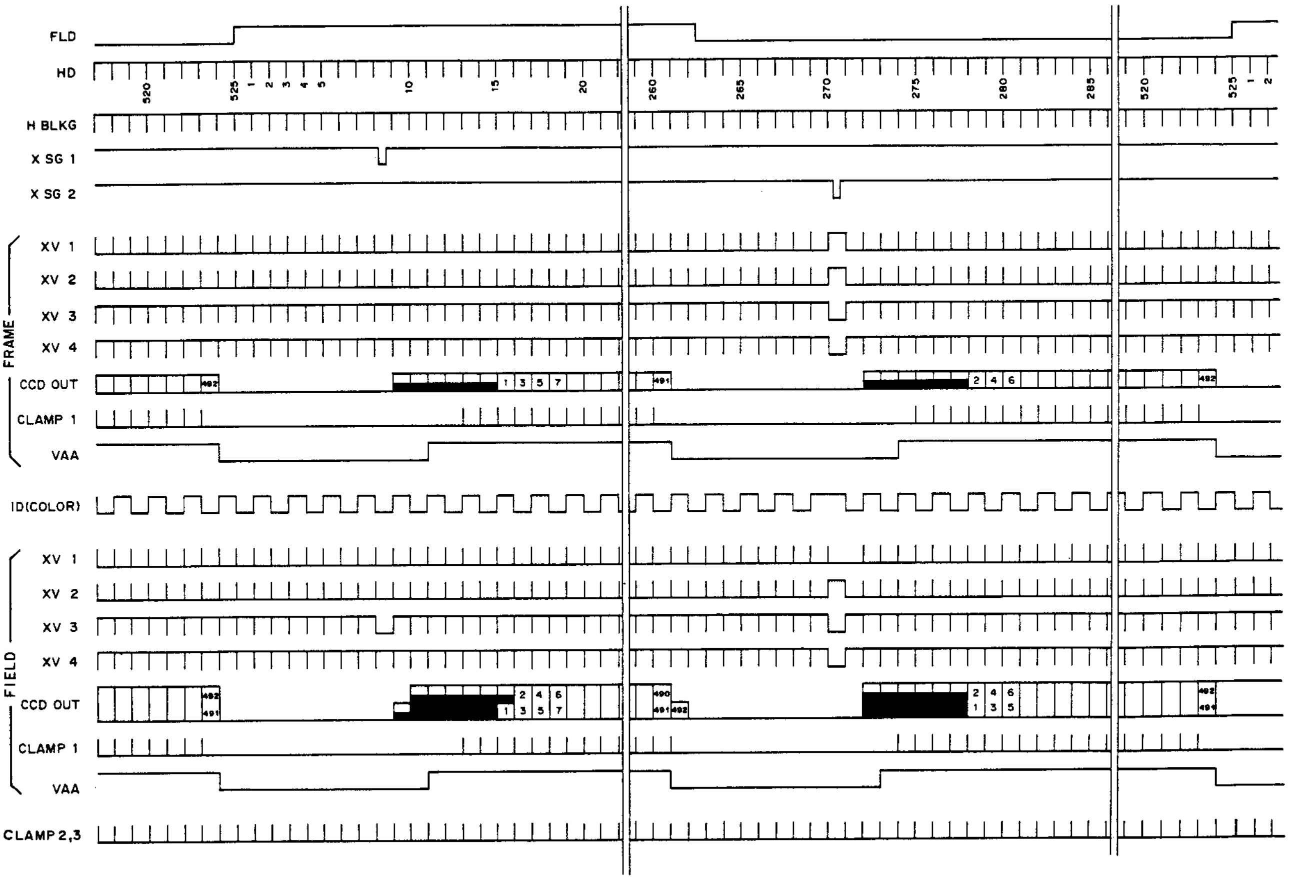
(B/W ROM OFF)


CP
SH 1
SH 2
XPG
SHP
SHD
SP 1
SP 2
ID

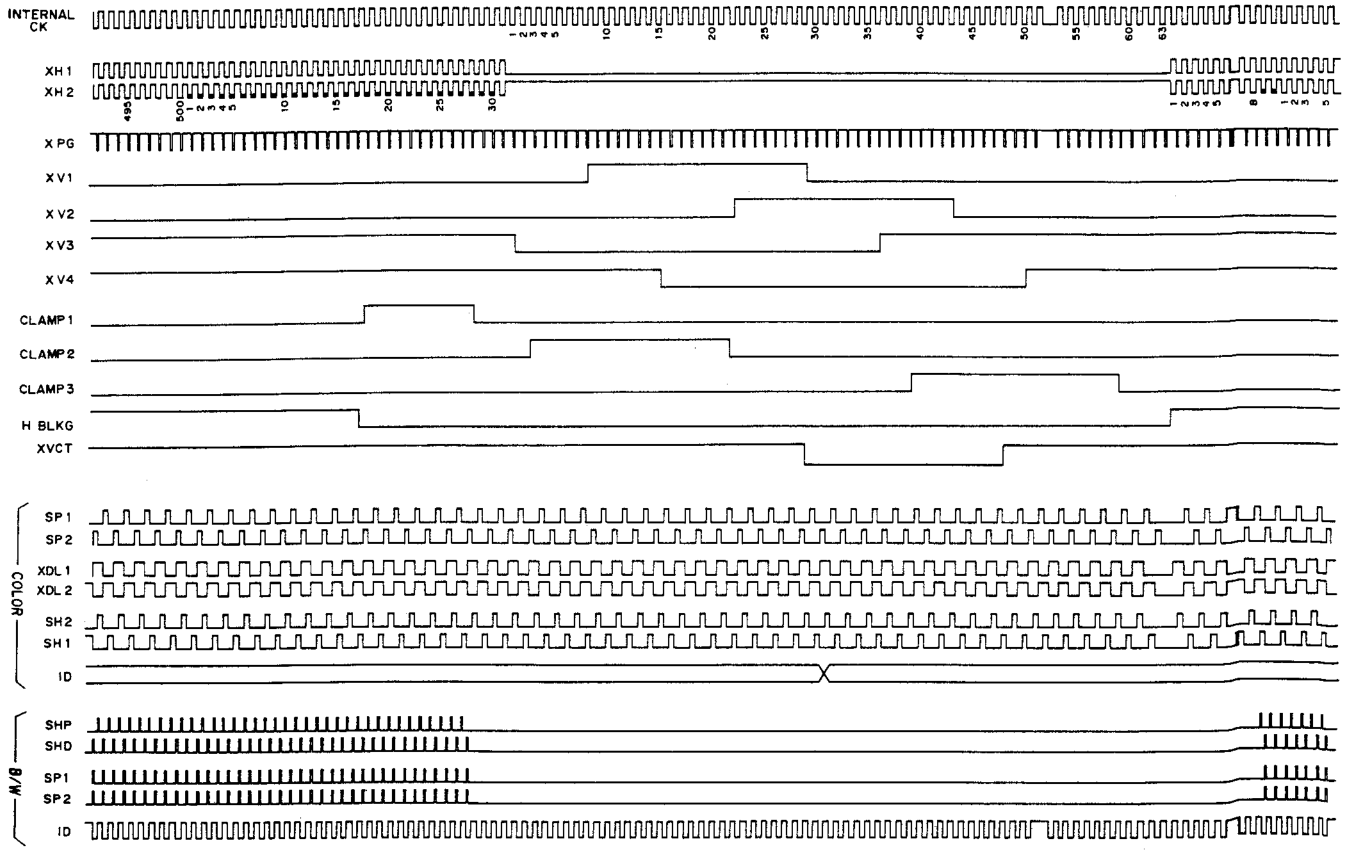
NTSC (ROM OFF)


INTERNAL CK
1
2
3
4
5
10
15
20
25
30
35
40
45
50
55
60
63
XH1
XH2
505
510
1
2
3
4
5
10
15
20
X PG
X V1
X V2
X V3
X V4
CLAMP1
CLAMP2
CLAMP3
H BLKG
XVCT
COLOR
SP1
SP2
XDL2
XDL1
SH2
SH1
ID
B/W
SHP
SHD
SP1
SP2
ID

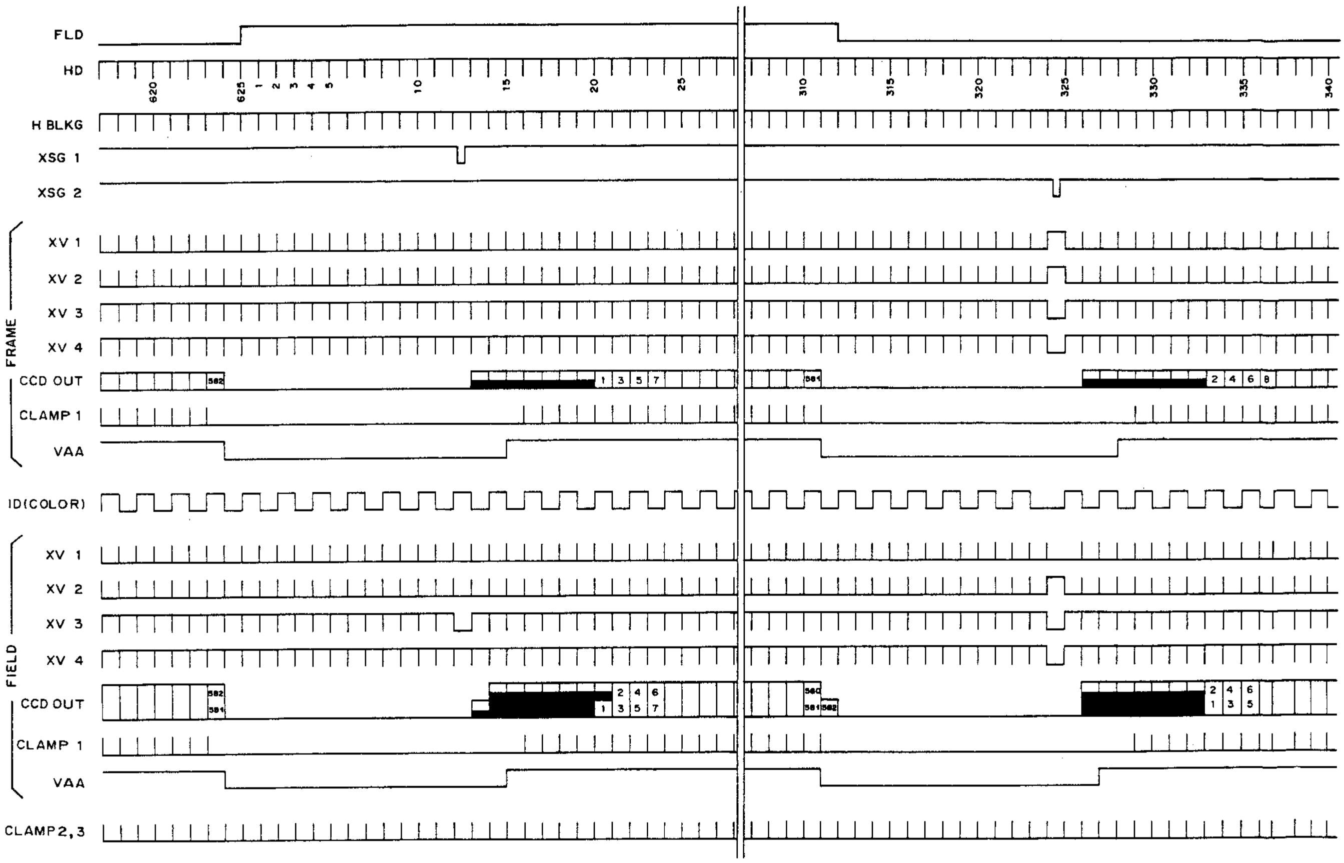
NTSC (ROM OFF)


FLD
HD
520
525
1
2
3
4
5
10
15
20
260
265
270
275
280
285
520
525
1
2
H BLKG
X SG 1
X SG 2
FRAME
XV 1
XV 2
XV 3
XV 4
CCD OUT
492
1 3 5 7
491
2 4 6
492
CLAMP 1
VAA
ID(COLOR)
FIELD
XV 1
XV 2
XV 3
XV 4
CCD OUT
492
491
2 4 6
1 3 5 7
490
491 492
2 4 6
1 3 5
492
491
CLAMP 1
VAA
CLAMP 2,3

CCIR (ROM OFF)


INTERNAL CK
1 2 3 4 5
10
15
20
25
30
35
40
45
50
55
60
63
XH 1
XH 2
495
500
1 2 3 4 5
10
15
20
25
30
1 2 3 4 5
8
1 2 3 5
XPG
XV1
XV2
XV3
XV4
CLAMP1
CLAMP2
CLAMP3
H BLKG
XVCT
COLOR
SP1
SP2
XDL1
XDL2
SH2
SH1
ID
B/W
SHP
SHD
SP1
SP2
ID

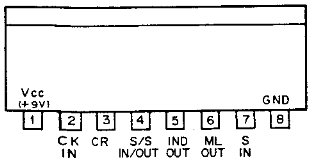
CCIR (ROM OFF)

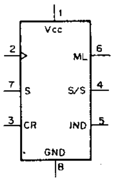

FLD
HD
620
625
1
2
3
4
5
10
15
20
25
310
315
320
325
330
335
340
H BLKG
XSG 1
XSG 2
FRAME
XV 1
XV 2
XV 3
XV 4
CCD OUT
582
1 3 5 7
581
2 4 6 8
CLAMP 1
VAA
ID(COLOR)
FIELD
XV 1
XV 2
XV 3
XV 4
CCD OUT
582
581
2 4 6
1 3 5 7
580
581 582
2 4 6
1 3 5
CLAMP 1
VAA
CLAMP2,3

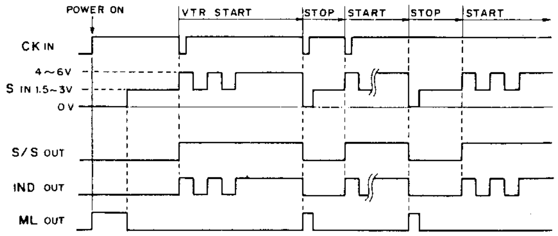
CX518 (SONY)

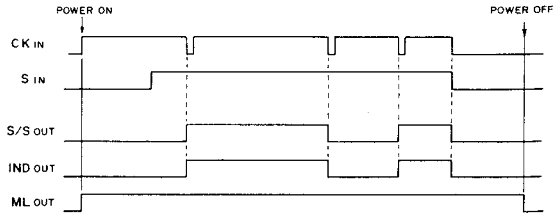
INTERFACE CIRCUIT BETWEEN VTR AND CAMERA

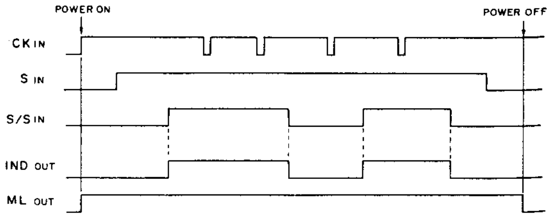
— SIDE VIEW —


Vcc (+9V)
GND
1
2
3
4
5
6
7
8
CK IN
CR
S/S IN/OUT
IND OUT
ML OUT
S IN

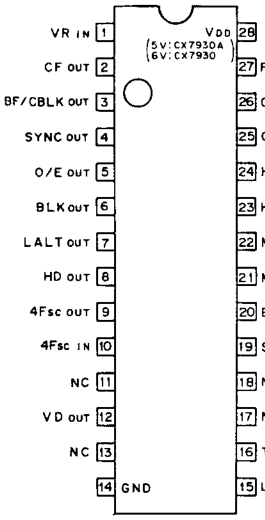

1
Vcc
2
ML
6
7
S
S/S
4
3
CR
IND
5
GND
8

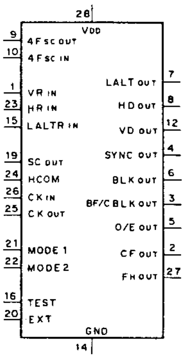

POWER ON
VTR START
STOP
START
STOP
START
CK IN
4~6V
S IN 1.5~3V
0V
S/S OUT
IND OUT
ML OUT


POWER ON
POWER OFF
CK IN
S IN
S/S OUT
IND OUT
ML OUT


POWER ON
POWER OFF
CK IN
S IN
S/S IN
IND OUT
ML OUT

CX7930A (SONY) FLAT PACKAGE
C-MOS SYNC GENERATOR (NTSC, PAL-M, PAL SECAM)
— TOP VIEW —


VR IN 1
CF OUT 2
BF/CBLK OUT 3
SYNC OUT 4
O/E OUT 5
BLK OUT 6
LALT OUT 7
HD OUT 8
4Fsc OUT 9
4Fsc IN 10
NC 11
VD OUT 12
NC 13
14 GND
VDD 28
(5V: CX7930A / 6V: CX7930)
27 FH OUT
26 CK IN
25 CK OUT
24 HCOM OUT
23 HR IN
22 MODE 2 IN
21 MODE 1 IN
20 EXT IN
19 SC OUT
18 NC
17 NC
16 TEST IN
15 LALTR IN


28 VDD
9 4Fsc OUT
10 4Fsc IN
1 VR IN
23 HR IN
15 LALTR IN
19 SC OUT
24 HCOM
26 CK IN
25 CK OUT
21 MODE 1
22 MODE 2
16 TEST
20 EXT
14 GND
LALT OUT 7
HD OUT 8
VD OUT 12
SYNC OUT 4
BLK OUT 6
BF/CBLK OUT 3
O/E OUT 5
CF OUT 2
FH OUT 27

O/E : ODD/EVEN FIELD
CF : COLOR FRAME PULSE
HCOM : H COMPARATOR

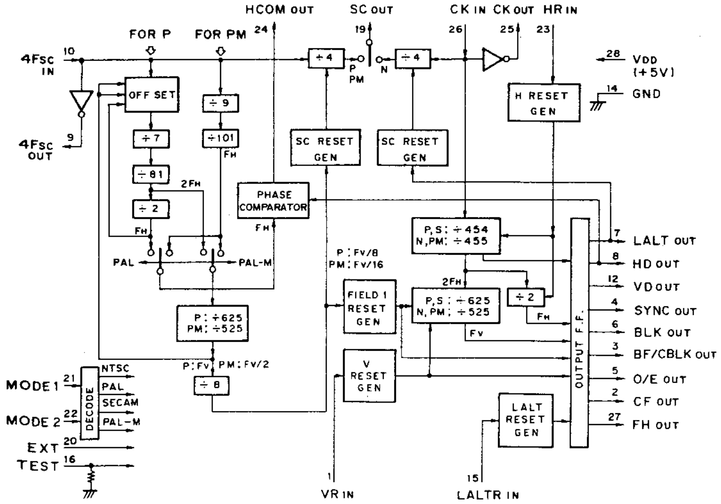
SYSTEM	4Fsc	CLOCK
NTSC	910 FH	910FH
PAL	1135FH+2Fv	908FH
PALM	909FH	910FH
SECAM	———	908FH

INPUTS		SYSTEM
MODE 1	MODE 2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

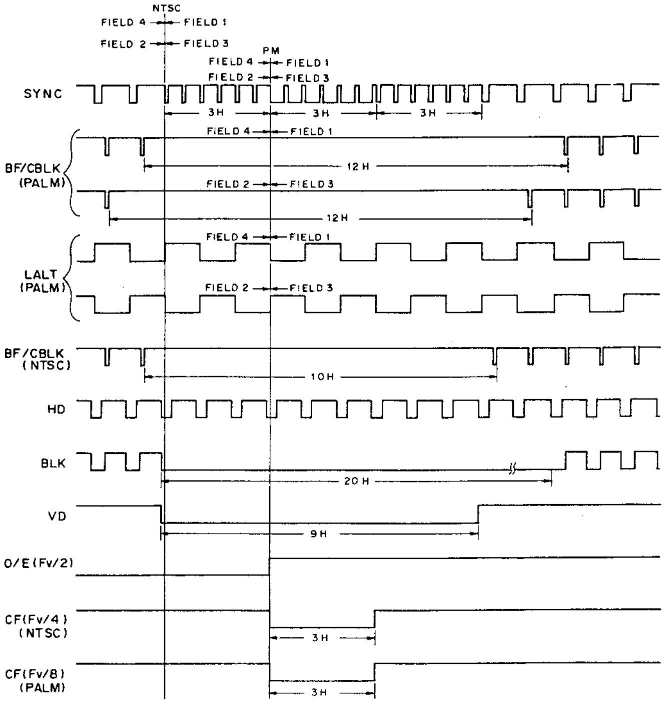
0 ; LOW LEVEL (GND)
1 ; HIGH LEVEL (VDD)

INPUTS		FUNCTION
EXT	TEST	
0	0	INTERNAL
0	1	INVALID
1	0	EXT
1	1	TEST

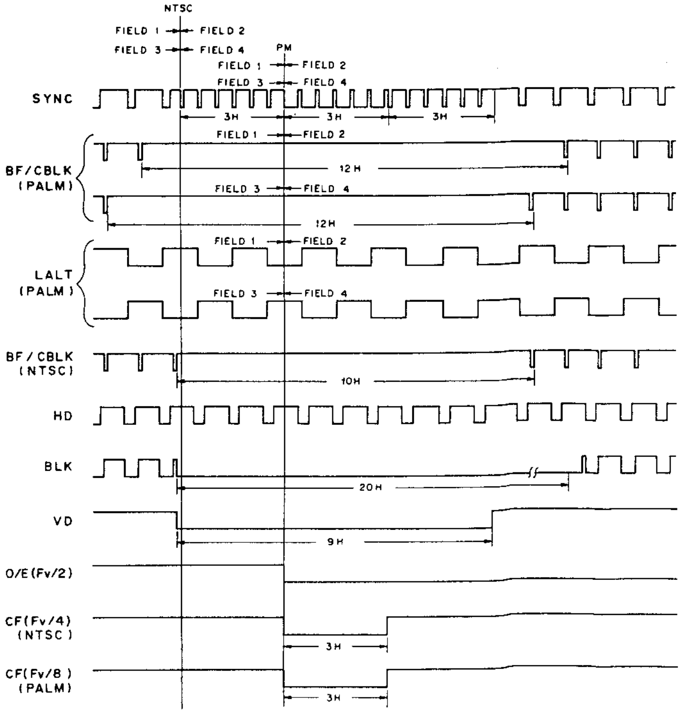
TEST "0": OPEN (INTERNALLY PULLED DOWN)

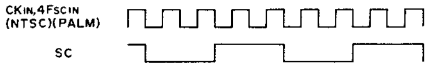

HCOM OUT
SC OUT
CK IN CK OUT HR IN
FOR P
FOR PM
24
19
26 25 23
4Fsc IN 10
4Fsc OUT 9
OFF SET
÷9
÷7
÷101
÷81
÷2
FH
2FH
PHASE COMPARATOR
PAL
PAL-M
P: ÷625
PM: ÷525
P: Fv PM: Fv/2
÷8
÷4
P
PM
N
SC RESET GEN
H RESET GEN
P,S: ÷454
N,PM: ÷455
P: Fv/8
PM: Fv/16
FIELD 1 RESET GEN
P,S: ÷625
N,PM: ÷525
÷2
Fv
V RESET GEN
LALT RESET GEN
OUTPUT F.F.
28 VDD (+5V)
14 GND
7 LALT OUT
8 HD OUT
12 VD OUT
4 SYNC OUT
6 BLK OUT
3 BF/CBLK OUT
5 O/E OUT
2 CF OUT
27 FH OUT
MODE 1 21
MODE 2 22
DECODE
NTSC
PAL
SECAM
PAL-M
EXT 20
TEST 16
1 VR IN
15 LALTR IN

NTSC, PAL-M (FIELD 1,3)

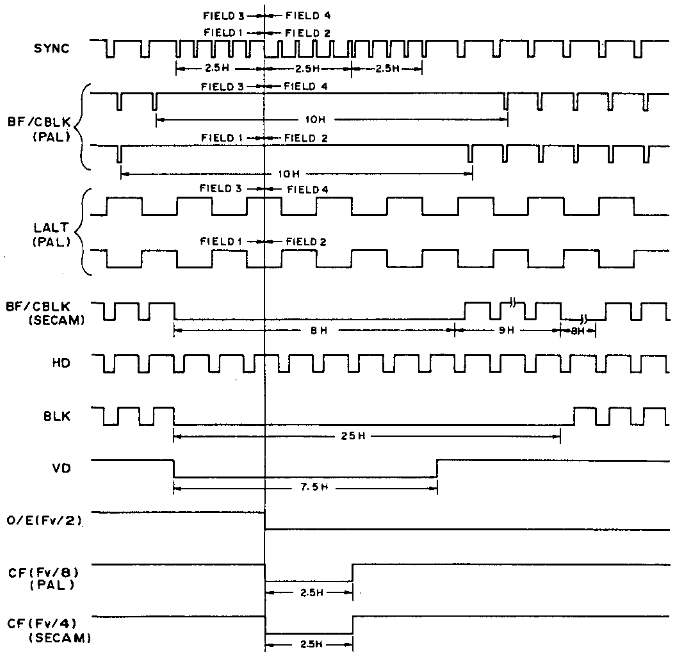


NTSC, PAL-M (FIELD 2,4)

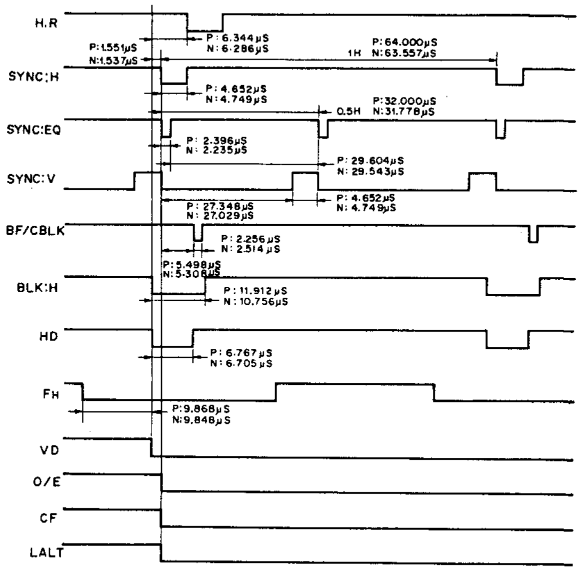




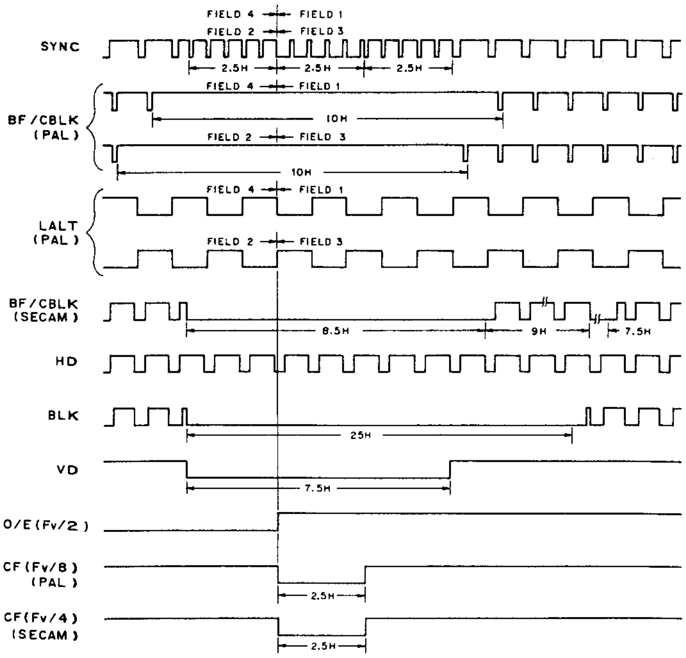
PAL, SECAM (FIELD 4, 2)

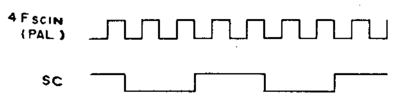

FIELD 3 → ← FIELD 4
FIELD 1 → ← FIELD 2
SYNC
2.5H
2.5H
2.5H
FIELD 3 → ← FIELD 4
BF/CBLK (PAL)
10H
FIELD 1 → ← FIELD 2
10H
FIELD 3 → ← FIELD 4
LALT (PAL)
FIELD 1 → ← FIELD 2
BF/CBLK (SECAM)
8H
9H
8H
HD
BLK
25H
VD
7.5H
O/E(Fv/2)
CF(Fv/8) (PAL)
2.5H
CF(Fv/4) (SECAM)
2.5H

P: PAL, SECAM
N: NTSC, PALM

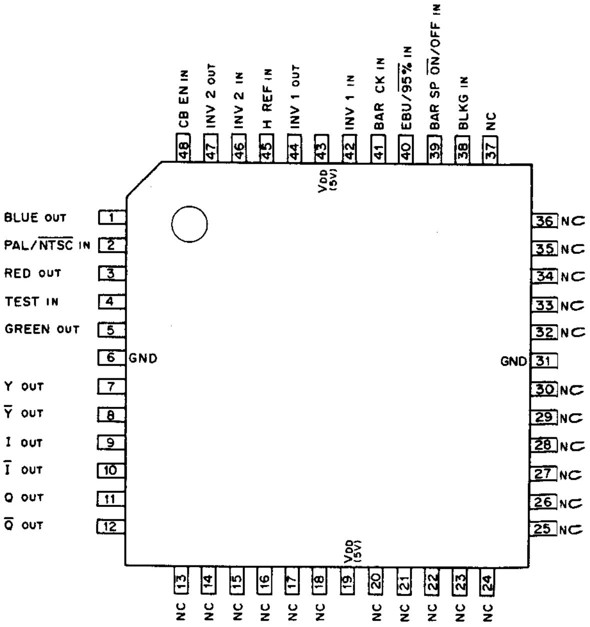

H.R
P: 6.344µS
N: 6.286µS
P: 1.551µS
N: 1.537µS
1H
P: 64.000µS
N: 63.557µS
SYNC:H
P: 4.652µS
N: 4.749µS
0.5H
P: 32.000µS
N: 31.778µS
SYNC:EQ
P: 2.396µS
N: 2.235µS
P: 29.604µS
N: 29.543µS
SYNC:V
P: 27.348µS
N: 27.029µS
P: 4.652µS
N: 4.749µS
BF/CBLK
P: 2.256µS
N: 2.514µS
P: 5.498µS
N: 5.306µS
BLK:H
P: 11.912µS
N: 10.756µS
HD
P: 6.767µS
N: 6.705µS
FH
P: 9.868µS
N: 9.848µS
VD
O/E
CF
LALT

PAL, SECAM (FIELD 1, 3)


FIELD 4 → ← FIELD 1
FIELD 2 → ← FIELD 3
SYNC
2.5H
2.5H
2.5H
FIELD 4 → ← FIELD 1
BF/CBLK (PAL)
10H
FIELD 2 → ← FIELD 3
10H
FIELD 4 → ← FIELD 1
LALT (PAL)
FIELD 2 → ← FIELD 3
BF/CBLK (SECAM)
8.5H
9H
7.5H
HD
BLK
25H
VD
7.5H
O/E (Fv/2)
CF (Fv/8) (PAL)
2.5H
CF (Fv/4) (SECAM)
2.5H

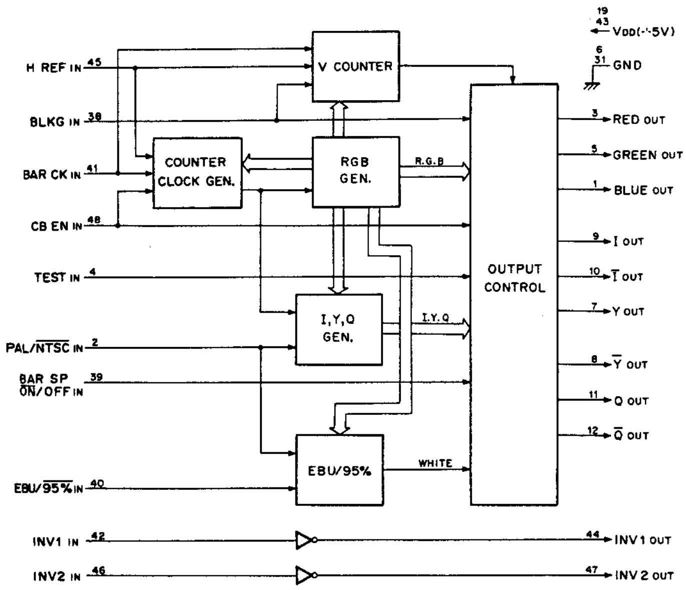

4 Fscin (PAL)
SC

CX7968 (SONY)
C-MOS COLOR BAR GENERATOR
— TOP VIEW —

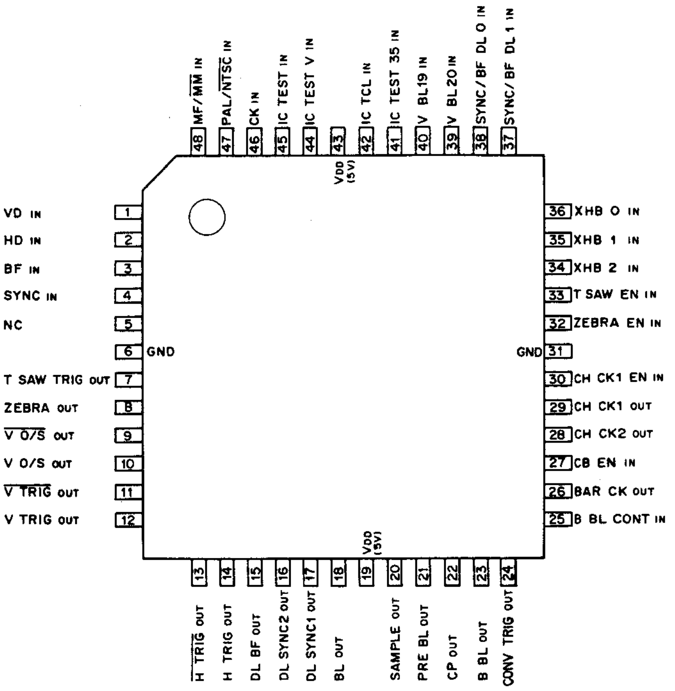

1 BLUE OUT
2 PAL/$\overline{\text{NTSC}}$ IN
3 RED OUT
4 TEST IN
5 GREEN OUT
6 GND
7 Y OUT
8 $\overline{\text{Y}}$ OUT
9 I OUT
10 $\overline{\text{I}}$ OUT
11 Q OUT
12 $\overline{\text{Q}}$ OUT
13 NC
14 NC
15 NC
16 NC
17 NC
18 NC
19 VDD (5V)
20 NC
21 NC
22 NC
23 NC
24 NC
25 NC
26 NC
27 NC
28 NC
29 NC
30 NC
31 GND
32 NC
33 NC
34 NC
35 NC
36 NC
37 NC
38 BLKG IN
39 BAR SP ON/OFF IN
40 EBU/$\overline{95\%}$ IN
41 BAR CK IN
42 INV 1 IN
43 VDD (5V)
44 INV 1 OUT
45 H REF IN
46 INV 2 IN
47 INV 2 OUT
48 CB EN IN

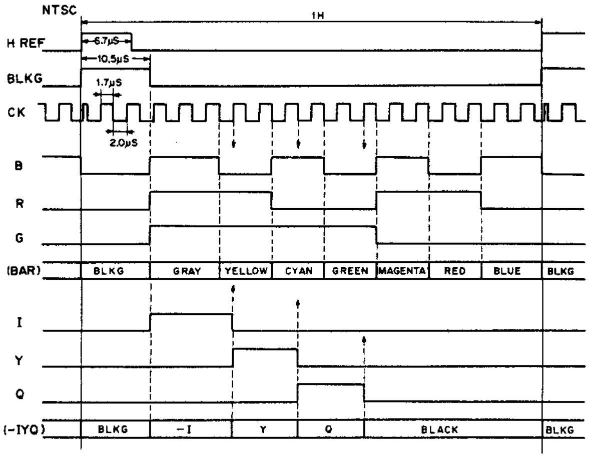
	INPUT			FUNCTION
	PAL/$\overline{\text{NTSC}}$	EBU/$\overline{95\%}$	BAR SP	
MODE 1	0	X	0	NTSC SPLIT
MODE 2	0	X	1	NTSC NON SPLIT
MODE 3	1	0	X	PAL 95%
MODE 4	1	1	X	PAL EBU

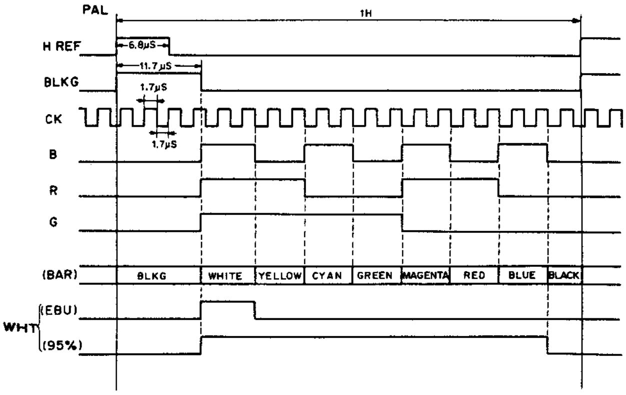
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE


H REF IN 45
BLKG IN 38
BAR CK IN 41
CB EN IN 48
TEST IN 4
PAL/$\overline{NTSC}$ IN 2
BAR SP ON/OFF IN 39
EBU/$\overline{95\%}$ IN 40
INV1 IN 42
INV2 IN 46
V COUNTER
COUNTER CLOCK GEN.
RGB GEN.
R.G.B
I,Y,Q GEN.
I.Y.Q
EBU/95%
WHITE
OUTPUT CONTROL
19 43 VDD(+5V)
6 31 GND
3 RED OUT
5 GREEN OUT
1 BLUE OUT
9 I OUT
10 $\overline{I}$ OUT
7 Y OUT
8 $\overline{Y}$ OUT
11 Q OUT
12 $\overline{Q}$ OUT
44 INV1 OUT
47 INV2 OUT

CX7969 (SONY)
C-MOS PULSE GENERATOR
— TOP VIEW —


1 VD IN
2 HD IN
3 BF IN
4 SYNC IN
5 NC
6 GND
7 T SAW TRIG OUT
8 ZEBRA OUT
9 $\overline{V\ O/S}$ OUT
10 V O/S OUT
11 $\overline{V\ TRIG}$ OUT
12 V TRIG OUT
13 $\overline{H\ TRIG}$ OUT
14 H TRIG OUT
15 DL BF OUT
16 DL SYNC2 OUT
17 DL SYNC1 OUT
18 BL OUT
19 VDD (5V)
20 SAMPLE OUT
21 PRE BL OUT
22 CP OUT
23 B BL OUT
24 CONV TRIG OUT
25 B BL CONT IN
26 BAR CK OUT
27 CB EN IN
28 CH CK2 OUT
29 CH CK1 OUT
30 CH CK1 EN IN
31 GND
32 ZEBRA EN IN
33 T SAW EN IN
34 XHB 2 IN
35 XHB 1 IN
36 XHB 0 IN
37 SYNC/BF DL 1 IN
38 SYNC/BF DL 0 IN
39 V BL20 IN
40 V BL19 IN
41 IC TEST 35 IN
42 IC TCL IN
43 VDD (5V)
44 IC TEST V IN
45 IC TEST IN
46 CK IN
47 PAL/$\overline{NTSC}$ IN
48 MF/$\overline{MM}$ IN


NTSC
1H
H REF
6.7μS
10.5μS
BLKG
1.7μS
CK
2.0μS
B
R
G
(BAR)
BLKG
GRAY
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLKG
I
Y
Q
(-IYQ)
BLKG
−I
Y
Q
BLACK
BLKG


PAL
1H
H REF
6.8μS
11.7μS
BLKG
1.7μS
CK
1.7μS
B
R
G
(BAR)
BLKG
WHITE
YELLOW
CYAN
GREEN
MAGENTA
RED
BLUE
BLACK
WHT
(EBU)
(95%)

1. SYSTEM DESIGNATION

INPUT	SYSTEM
PAL/$\overline{NTSC}$ IN	
1	PAL, SECAM
0	NTSC, PALM

2. TYPE OF TUBE

INPUT	FUNCTION
MF/$\overline{MM}$ IN	
1	MAG-STA TUBE
0	MAG-MAG TUBE

3. V BLKG WIDTH (NTSC ONLY)

INPUT		V BLKG WIDTH
V BL 19	V BL 20	
1	X	19H
0	1	20H
0	0	21H

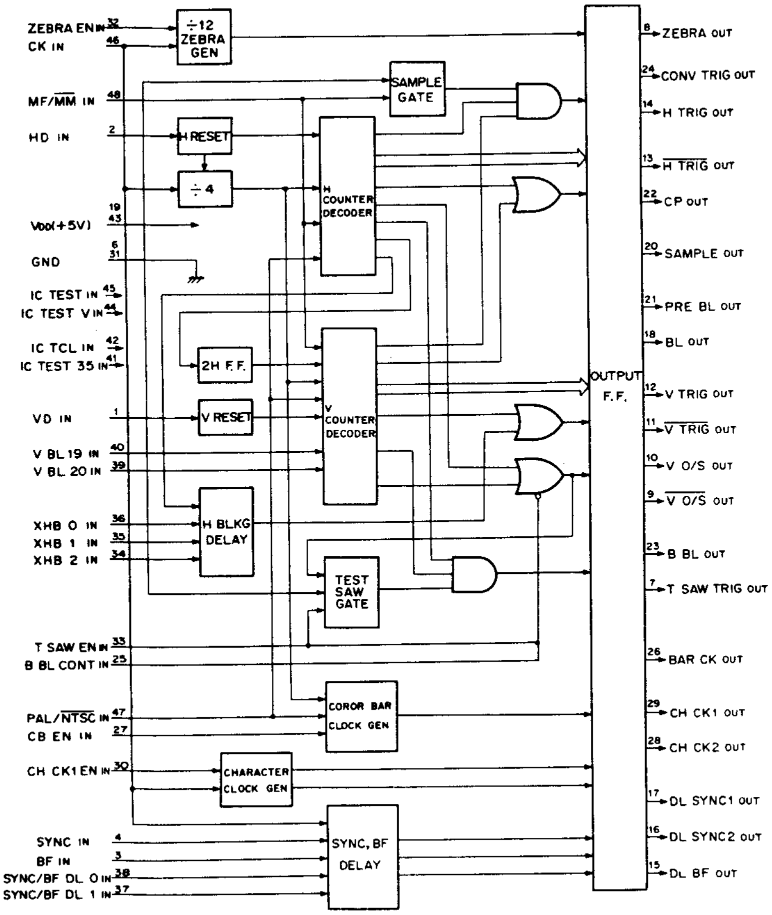
4. H BLKG WIDTH

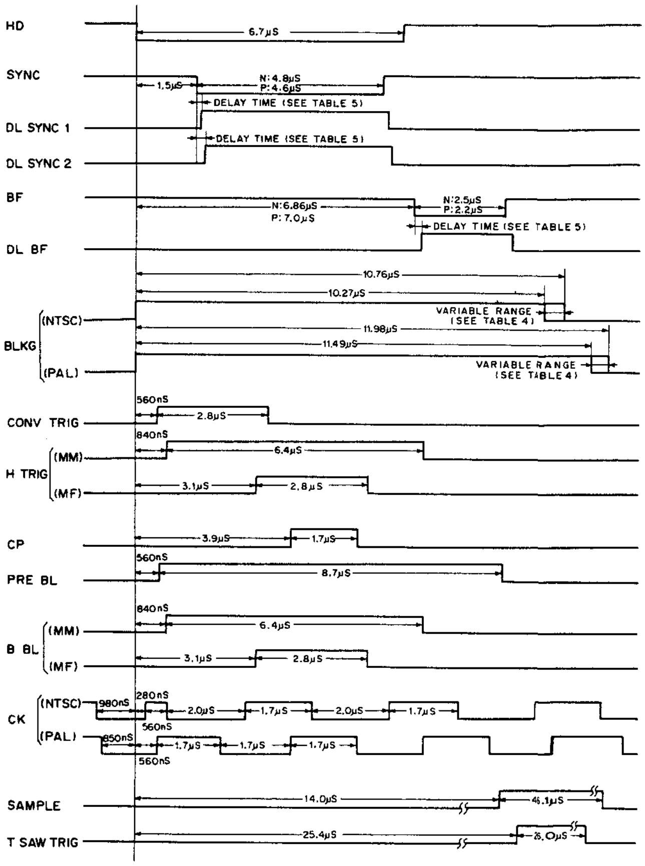
INPUT			BLKG WIDTH (μS)	
XHB2	XHB1	XHB0	NTSC	PAL
1	1	1	10.27	11.49
1	1	0	10.34	11.56
1	0	1	10.41	11.63
1	0	0	10.48	11.70
0	1	1	10.55	11.77
0	1	0	10.62	11.84
0	0	1	10.69	11.91
0	0	0	10.76	11.98

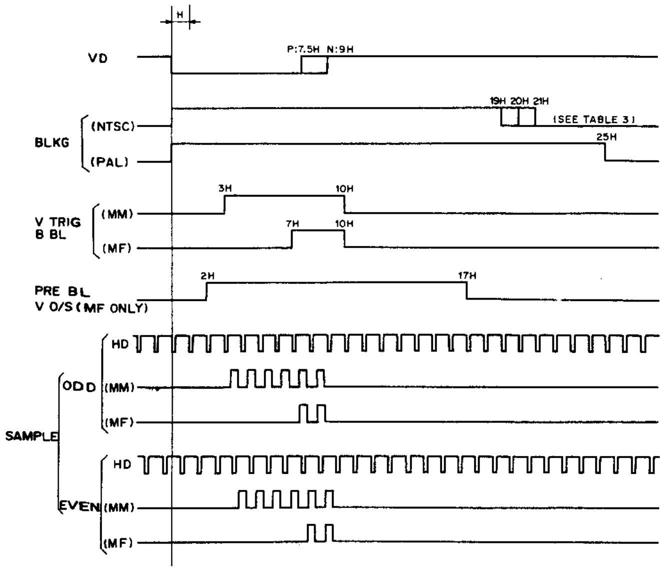
5. DELAY TIME

INPUT		DELAY TIME (nS)		
SYNC/BF DL1	SYNC/BF DL2	DL SYNC 1	DL SYNC 2	DL BF
1	1	140	210	140
1	0	210	280	210
0	1	630	700	630
0	0	700	770	700

1; HIGH LEVEL
0; LOW LEVEL
X; DON'T CARE


ZEBRA EN IN 32
CK IN 46
÷12 ZEBRA GEN
MF/MM IN 48
HD IN 2
H RESET
÷4
VDD(+5V) 19 43
GND 6 31
IC TEST IN 45
IC TEST V IN 44
IC TCL IN 42
IC TEST 35 IN 41
2H F.F.
VD IN 1
V RESET
V BL 19 IN 40
V BL 20 IN 39
XHB 0 IN 36
XHB 1 IN 35
XHB 2 IN 34
H BLKG DELAY
SAMPLE GATE
H COUNTER DECODER
V COUNTER DECODER
TEST SAW GATE
T SAW EN IN 33
B BL CONT IN 25
PAL/NTSC IN 47
CB EN IN 27
CORОR BAR CLOCK GEN
CH CK1 EN IN 30
CHARACTER CLOCK GEN
SYNC IN 4
BF IN 3
SYNC/BF DL 0 IN 38
SYNC/BF DL 1 IN 37
SYNC, BF DELAY
OUTPUT F.F.
8 ZEBRA OUT
24 CONV TRIG OUT
14 H TRIG OUT
13 H TRIG OUT
22 CP OUT
20 SAMPLE OUT
21 PRE BL OUT
18 BL OUT
12 V TRIG OUT
11 V TRIG OUT
10 V O/S OUT
9 V O/S OUT
23 B BL OUT
7 T SAW TRIG OUT
26 BAR CK OUT
29 CH CK1 OUT
28 CH CK2 OUT
17 DL SYNC1 OUT
16 DL SYNC2 OUT
15 DL BF OUT

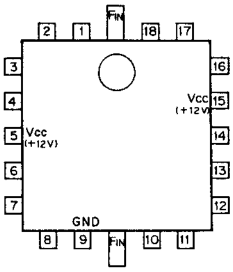

HD
6.7μS
SYNC
1.5μS
N:4.8μS
P:4.6μS
DELAY TIME (SEE TABLE 5)
DL SYNC 1
DELAY TIME (SEE TABLE 5)
DL SYNC 2
BF
N:6.86μS
P:7.0μS
N:2.5μS
P:2.2μS
DELAY TIME (SEE TABLE 5)
DL BF
10.76μS
10.27μS
VARIABLE RANGE (SEE TABLE 4)
BLKG
(NTSC)
(PAL)
11.98μS
11.49μS
VARIABLE RANGE (SEE TABLE 4)
CONV TRIG
560nS
2.8μS
H TRIG
(MM)
(MF)
840nS
6.4μS
3.1μS
2.8μS
CP
3.9μS
1.7μS
PRE BL
560nS
8.7μS
B BL
(MM)
(MF)
840nS
6.4μS
3.1μS
2.8μS
CK
(NTSC)
(PAL)
980nS
280nS
2.0μS
1.7μS
2.0μS
1.7μS
560nS
850nS
1.7μS
1.7μS
1.7μS
560nS
SAMPLE
14.0μS
4.1μS
T SAW TRIG
25.4μS
8.0μS

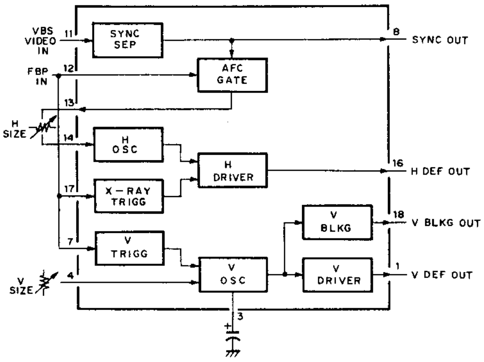

H
VD
P:7.5H N:9H
BLKG
(NTSC)
(PAL)
19H 20H 21H
(SEE TABLE 3)
25H
V TRIG
B BL
(MM)
(MF)
3H
10H
7H
10H
PRE BL
V O/S (MF ONLY)
2H
17H
SAMPLE
ODD
EVEN
HD
(MM)
(MF)

HA11423MP (HITACHI) FLAT PACKAGE

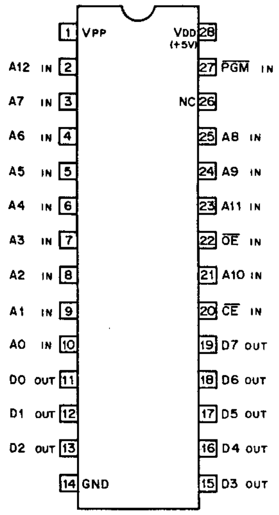
TV H/V SYNC SIGNAL PROCESSOR

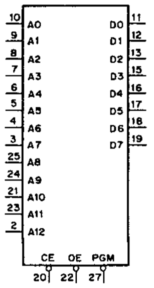
— TOP VIEW —

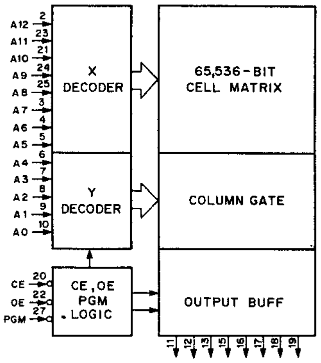

2
1
FIN
18
17
3
4
5
6
7
16
15
14
13
12
Vcc (+12V)
Vcc (+12V)
GND
8
9
FIN
10
11


VBS VIDEO IN
11
SYNC SEP
8
SYNC OUT
FBP IN
12
AFC GATE
13
H SIZE
14
H OSC
H DRIVER
16
H DEF OUT
17
X-RAY TRIGG
V BLKG
18
V BLKG OUT
7
V TRIGG
V SIZE
4
V OSC
V DRIVER
1
V DEF OUT
3

HN27C64G-20 (HITACHI) (ACCESS TIME = 200 nS)
C-MOS 64K (8K-8) ERASABLE PROM WITH 3-STATE OUTPUTS
— TOP VIEW —


1 VPP
2 A12 IN
3 A7 IN
4 A6 IN
5 A5 IN
6 A4 IN
7 A3 IN
8 A2 IN
9 A1 IN
10 A0 IN
11 D0 OUT
12 D1 OUT
13 D2 OUT
14 GND
28 VDD (+5V)
27 PGM IN
26 NC
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE IN
19 D7 OUT
18 D6 OUT
17 D5 OUT
16 D4 OUT
15 D3 OUT


A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
D0 D1 D2 D3 D4 D5 D6 D7
CE OE PGM
20 22 27

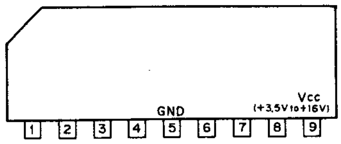

A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0
X DECODER
Y DECODER
65,536-BIT CELL MATRIX
COLUMN GATE
CE
OE
PGM
CE,OE PGM LOGIC
OUTPUT BUFF
11 12 13 15 16 17 18 19

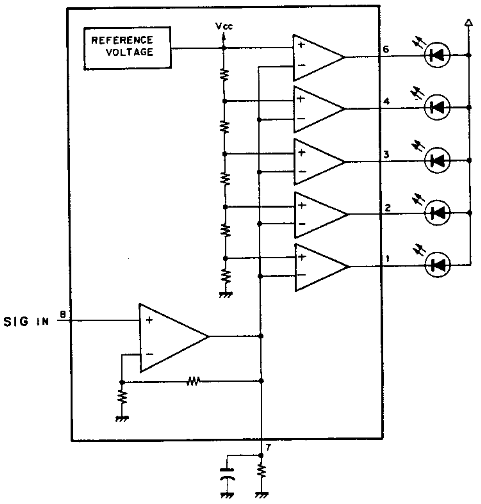
A0–A12 ; ADDRESS
CE ; CHIP ENABLE
D0–D7 ; DATA OUTPUT
OE ; OUTPUT ENABLE
PGM ; PROGRAM ENABLE
VPP ; PROGRAM VOLTAGE

An	CE	OE	PGM	VPP	Dn	FUNCTION
An	0	0	1	+5V	D OUT	READ
An	0	1	1	+5V	HI-Z	OUTPUT DISABLE
An	0	0	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
An	0	X	⊔	+21V	DIN	PGM
An	0	0	1	+21V	D OUT	PGM VERIFY
X	1	X	X	+21V	HI-Z	PGM INH

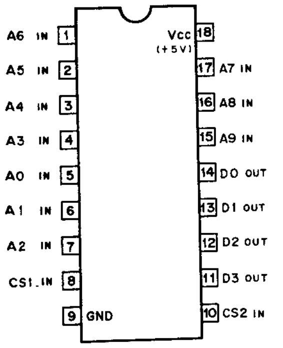
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

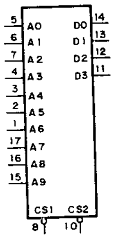
LB1423N (SANYO)
LED DRIVER FOR AC/DC LEVEL METER
— SIDE VIEW —


GND
Vcc (+3.5V to +16V)
1 2 3 4 5 6 7 8 9


REFERENCE VOLTAGE
Vcc
6
4
3
2
1
SIG IN 8
7

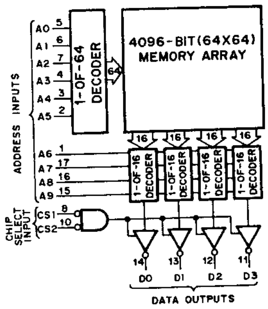
MB7054 (FUJITSU)
4096-BIT (1024×4) PROM (3-STATE OUTPUT)
— TOP VIEW —


1 A6 IN
2 A5 IN
3 A4 IN
4 A3 IN
5 A0 IN
6 A1 IN
7 A2 IN
8 CS1 IN
9 GND
18 Vcc (+5V)
17 A7 IN
16 A8 IN
15 A9 IN
14 D0 OUT
13 D1 OUT
12 D2 OUT
11 D3 OUT
10 CS2 IN


A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
D0 D1 D2 D3
CS1 CS2
8 10

CHIP SEL CS1	CHIP SEL CS2	OUTPUT
0	0	ENABLE
X	1	HI-IMPEDANCE
1	X	

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE


ADDRESS INPUTS
A0 A1 A2 A3 A4 A5
1-OF-64 DECODER
64
4096-BIT (64X64) MEMORY ARRAY
16
A6 A7 A8 A9
1-OF-16 DECODER
CHIP SELECT INPUT
CS1 CS2
14 13 12 11
D0 D1 D2 D3
DATA OUTPUTS

WORD/ADDRESS TABLE

WORD		ADDRESS INPUTS									
		A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
0	000	0	0	0	0	0	0	0	0	0	0
1	001	0	0	0	0	0	0	0	0	0	1
2	002	0	0	0	0	0	0	0	0	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
9	009	0	0	0	0	0	0	1	0	0	1
10	00A	0	0	0	0	0	0	1	0	1	0
11	00B	0	0	0	0	0	0	1	0	1	1
12	00C	0	0	0	0	0	0	1	1	0	0
13	00D	0	0	0	0	0	0	1	1	0	1
14	00E	0	0	0	0	0	0	1	1	1	0
15	00F	0	0	0	0	0	0	1	1	1	1
16	010	0	0	0	0	0	1	0	0	0	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
1021	3FD	1	1	1	1	1	1	1	1	0	1
1022	3FE	1	1	1	1	1	1	1	1	1	0
1023	3FF	1	1	1	1	1	1	1	1	1	1

IN HEXADECIMAL
IN DECIMAL

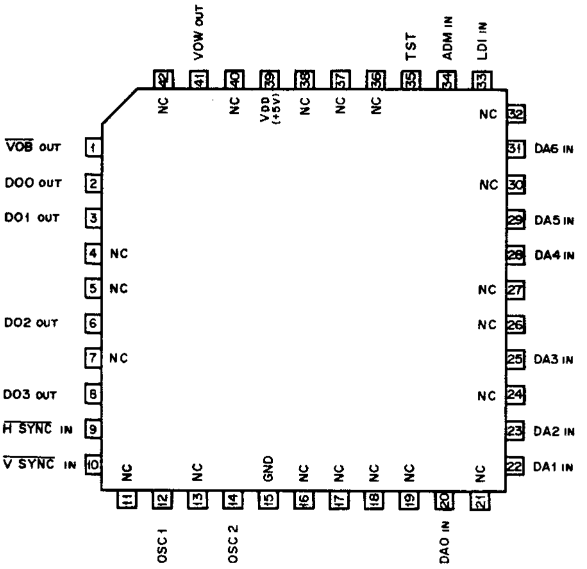
DATA CODE/ACTUAL DATA

DATA CODE		ACTUAL DATA			
		D3	D2	D1	D0
0	0	0	0	0	0
1	1	0	0	0	1
2	2	0	0	1	0
3	3	0	0	1	1
4	4	0	1	0	0
5	5	0	1	0	1
6	6	0	1	1	0
7	7	0	1	1	1
8	8	1	0	0	0
9	9	1	0	0	1
10	A	1	0	1	0
11	B	1	0	1	1
12	C	1	1	0	0
13	D	1	1	0	1
14	E	1	1	1	0
15	F	1	1	1	1

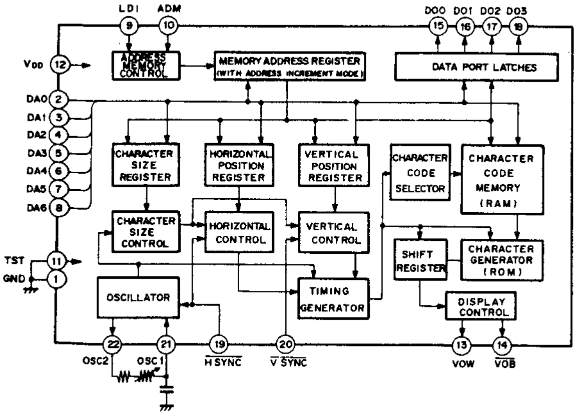
IN HEXADECIMAL
IN DECIMAL

MN1237A (MATSUSHITA) FLAT PACKAGE

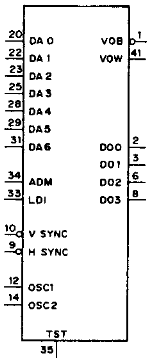
C-MOS INDICATES DATA OF 60 CHARACTERS CRT INTERFACE
— TOP VIEW —


VOB OUT 1
DOO OUT 2
DO1 OUT 3
4 NC
5 NC
DO2 OUT 6
7 NC
DO3 OUT 8
H SYNC IN 9
V SYNC IN 10
11 NC
12 OSC 1
13 NC
14 OSC 2
15 GND
16 NC
17 NC
18 NC
19 NC
20 DAO IN
21 NC
22 DA1 IN
23 DA2 IN
24 NC
25 DA3 IN
26 NC
27 NC
28 DA4 IN
29 DA5 IN
30 NC
31 DA6 IN
32 NC
33 LDI IN
34 ADM IN
35 TST
36 NC
37 NC
38 NC
39 VDD (+5V)
40 NC
41 VOW OUT
42 NC

ADM	;	ADDRESS MODE SELECT IN
DAO~DA6	;	DATA BUS INPUT
DOO~DO3	;	GENERAL OUTPUT
H SYNC	;	H SYNC INPUT
V SYNC	;	V SYNC INPUT
LDI	;	STROBE PULSE INPUT
OSC1,2	;	OSC
TST	;	TEST
VOB	;	BACKGROUND OUTPUT
VOW	;	CHARACTERS OUTPUT

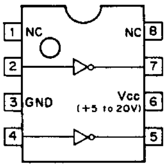

LDI
ADM
9
10
DOO DO1 DO2 DO3
15 16 17 18
VDD 12
ADDRESS MEMORY CONTROL
MEMORY ADDRESS REGISTER (WITH ADDRESS INCREMENT MODE)
DATA PORT LATCHES
DAO 2
DA1 3
DA2 4
DA3 5
DA4 6
DA5 7
DA6 8
CHARACTER SIZE REGISTER
HORIZONTAL POSITION REGISTER
VERTICAL POSITION REGISTER
CHARACTER CODE SELECTOR
CHARACTER CODE MEMORY (RAM)
CHARACTER SIZE CONTROL
HORIZONTAL CONTROL
VERTICAL CONTROL
SHIFT REGISTER
CHARACTER GENERATOR (ROM)
TST 11
GND 1
OSCILLATOR
TIMING GENERATOR
DISPLAY CONTROL
22 OSC2
21 OSC1
19 H SYNC
20 V SYNC
13 VOW
14 VOB

DA3 DA2 DA1 DA0	DA5 DA4 0 0	DA5 DA4 0 1	DA5 DA4 1 0
0 0 0 0	A	N	0
0 0 0 1	B	O	1
0 0 1 0	C	P	2
0 0 1 1	D	Q	3
0 1 0 0	E	R	4
0 1 0 1	F	S	5
0 1 1 0	G	T	6
0 1 1 1	H	U	7
1 0 0 0	I	V	8
1 0 0 1	J	W	9
1 0 1 0	K	X	:
1 0 1 1	L	Y	.
1 1 0 0	M	Z	-
1 1 0 1	·	?	/
1 1 1 0	□	□	□
1 1 1 1			


20 DA0
22 DA1
23 DA2
25 DA3
28 DA4
29 DA5
31 DA6
34 ADM
33 LDI
10 V SYNC
9 H SYNC
12 OSC1
14 OSC2
VOB 1
VOW 41
DOO 2
DO1 3
DO2 6
DO3 8
TST 35

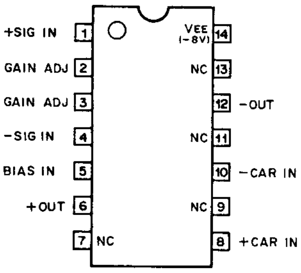
MMH0026CP1 (MOTOROLA)

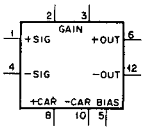
BIPOLAR MOS CLOCK DRIVER
— TOP VIEW —


1 NC
2
3 GND
4
5
6 Vcc (+5 to 20V)
7
8 NC

NJM1496M (JRC) FLAT PACKAGE

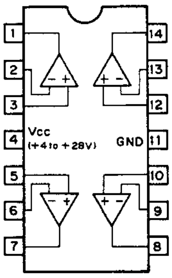
BALANCED MODULATOR/DEMODULATOR
— TOP VIEW —


+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
-SIG IN 4
BIAS IN 5
+OUT 6
7 NC
8 +CAR IN
NC 9
10 -CAR IN
NC 11
12 -OUT
NC 13
VEE (-8V) 14


2 3
GAIN
1 +SIG
+OUT 6
4 -SIG
-OUT 12
+CAR -CAR BIAS
8 10 5

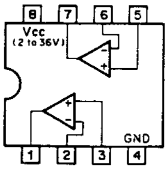
NJM2902M (JRC)

OPERATIONAL AMPLIFIER
— TOP VIEW —

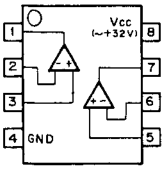

1
2
3
4 Vcc (+4 to +28V)
5
6
7
8
9
10
GND 11
12
13
14

NJM2903M (JRC) FLAT PACKAGE

VOLTAGE COMPARATOR
— TOP VIEW —

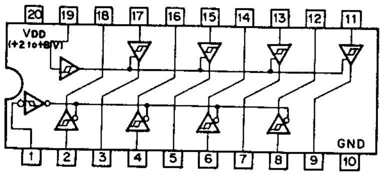

8 7 6 5
Vcc (2 to 36V)
GND
1 2 3 4

NJM2904D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —

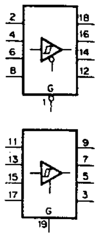


1
2
3
4
GND
Vcc
(~+32V)
8
7
6
5

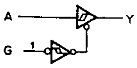
TC40H241F (TOSHIBA) FLAT PACKAGE
C-MOS 3-STATE SCHMITT TRIGGER BUFFER/LINE DRIVER
— TOP VIEW —



20
19
18
17
16
15
14
13
12
11
VDD
(+2 to+8V)
GND
1
2
3
4
5
6
7
8
9
10

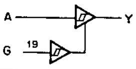


2
4
6
8
18
16
14
12
G
1
11
13
15
17
9
7
5
3
G
19



G	A	Y
0	0	0
0	1	1
1	0	HI - Z
1	1	HI - Z

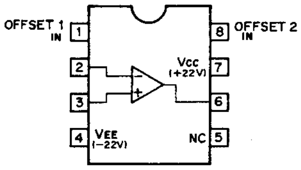
HI - Z ;
HIGH IMPEDANCE



G	A	Y
0	0	HI - Z
0	1	HI - Z
1	0	0
1	1	1

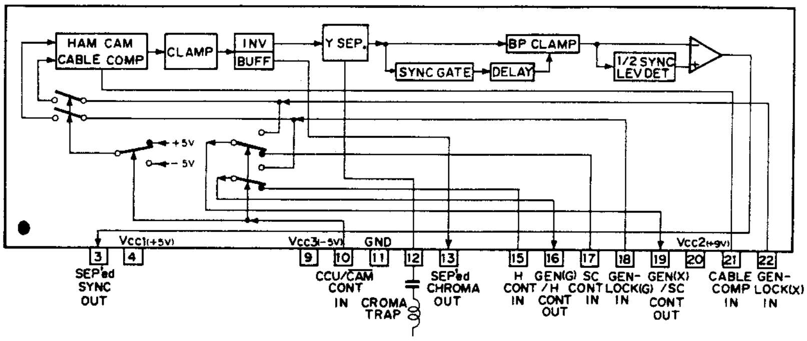
HI - Z ;
HIGH IMPEDANCE

OP-07DPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —



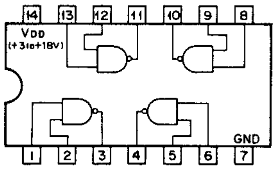
OFFSET 1 IN
1
2
3
4
VEE
(−22V)
Vcc
(+22V)
OFFSET 2 IN
8
7
6
NC
5

SBX1516 (SONY)
SYNC SEPARATOR
— PRINTED SIDE VIEW —

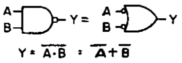


HAM CAM
CABLE COMP
CLAMP
INV
BUFF
Y SEP.
BP CLAMP
SYNC GATE
DELAY
1/2 SYNC
LEV DET
+5V
−5V
Vcc1(+5V)
Vcc3(−5V)
GND
Vcc2(+9V)
3
4
9
10
11
12
13
15
16
17
18
19
20
21
22
SEP'ed SYNC OUT
CCU/CAM CONT IN
CROMA TRAP
SEP'ed CHROMA OUT
H CONT IN
GEN(G) /H CONT OUT
SC CONT IN
GEN-LOCK(G) IN
GEN(X) /SC CONT OUT
CABLE COMP IN
GEN-LOCK(X) IN

TC4011BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND GATE
— TOP VIEW —



14
13
12
11
10
9
8
VDD
(+3 to+18V)
GND
1
2
3
4
5
6
7

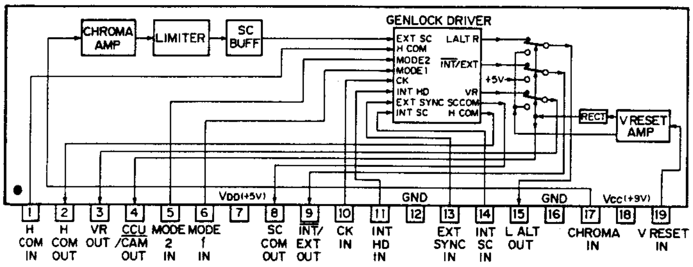


$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SBX1525 (SONY)
SC LIMITER AND GENLOCK DRIVER
— PRINTED SIDE VIEW —



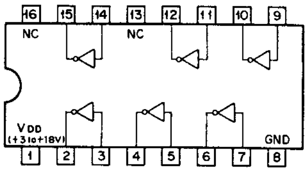
CHROMA AMP
LIMITER
SC BUFF
GENLOCK DRIVER
EXT SC
H COM
MODE2
MODE1
CK
INT HD
EXT SYNC
INT SC
LALT R
INT/EXT
+5V
VR
SCCOM
H COM
RECT
V RESET AMP
VDD(+5V)
GND
GND
Vcc(+9V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
H COM IN
H COM OUT
VR OUT
CCU /CAM OUT
MODE 2 IN
MODE 1 IN
SC COM OUT
INT/ EXT OUT
CK IN
INT HD IN
EXT SYNC IN
INT SC IN
L ALT OUT
CHROMA IN
V RESET IN

MODE SELECTION

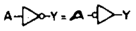
MODE1	MODE2	MODE
1	1	NTSC
0	0	CCIR

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4049BF (TOSHIBA) FLAT PACKAGE
C-MOS INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



16
15
14
13
12
11
10
9
NC
NC
VDD
(+3 to+18V)
GND
1
2
3
4
5
6
7
8



$Y = \overline{A}$

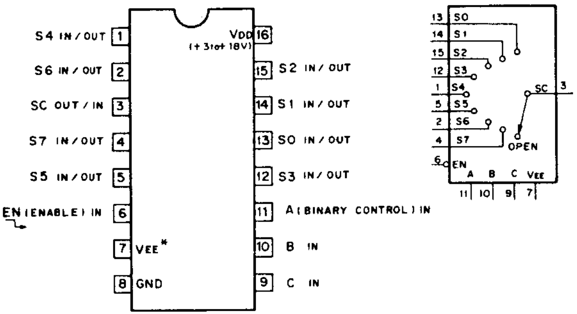
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4051BF (TOSHIBA) FLAT PACKAGE

C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER

— TOP VIEW —


S4 IN/OUT 1
S6 IN/OUT 2
SC OUT/IN 3
S7 IN/OUT 4
S5 IN/OUT 5
EN (ENABLE) IN 6
7 VEE*
8 GND
VDD 16 (+3 to +18V)
15 S2 IN/OUT
14 S1 IN/OUT
13 S0 IN/OUT
12 S3 IN/OUT
11 A (BINARY CONTROL) IN
10 B IN
9 C IN
13 S0
14 S1
15 S2
12 S3
1 S4
5 S5
2 S6
4 S7
6 EN
SC 3
OPEN
A B C VEE
11 10 9 7

VEE*; VDD − VEE: +3 to +18V

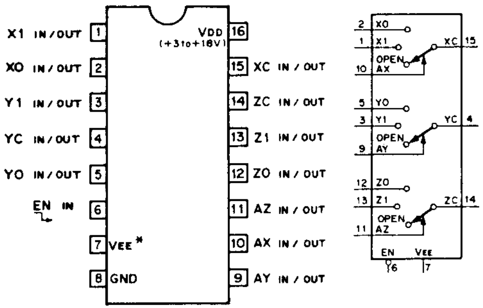
EN	C	B	A	"ON" CHANNEL
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TC4053BF (TOSHIBA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER

— TOP VIEW —


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD 16 (+3 to +18V)
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT
2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN VEE
6 7

VEE*; VDD − VEE: +3 to +18V

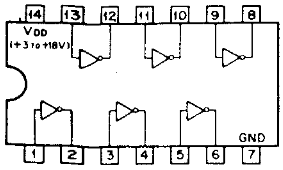
CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

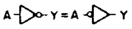
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

TC4069UBF (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER

— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +18V)
GND
1 2 3 4 5 6 7



Y = Ā

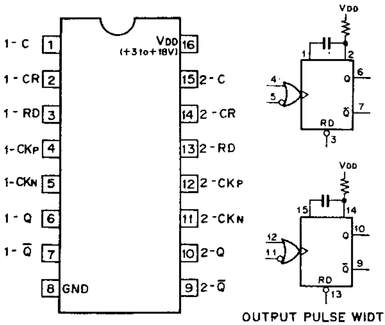
A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

TC4538BF (TOSHIBA) FLAT PACKAGE

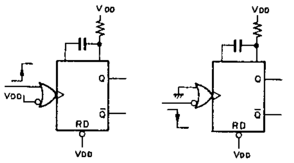
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR

— TOP VIEW —

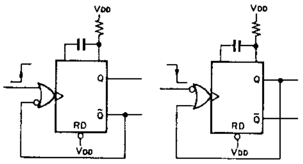

1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD 16 (+3 to +18V)
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄
VDD
1
2
4
5
Q 6
Q̄ 7
RD
3
VDD
15
14
12
11
Q 10
Q̄ 9
RD
13

OUTPUT PULSE WIDTH≒CR

RETRIGGERABLE M.M.V


VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

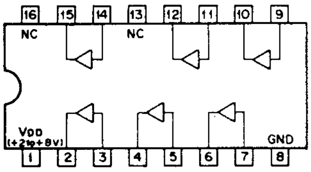
NON-RETRIGGERABLE M.M.V

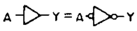

VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

TC50H001F (TOSHIBA) FLAT PACKAGE

C-MOS NON-INVERTING TYPE BUFFER/CONVERTER

— TOP VIEW —


16 15 14 13 12 11 10 9
NC
NC
VDD (+2 to +8V)
GND
1 2 3 4 5 6 7 8



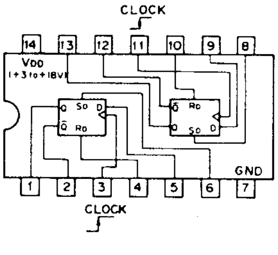
Y = A

A	Y
0	0
1	1

TC504013BF (TOSHIBA) FLAT PACKAGE

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET

— TOP VIEW —


CLOCK
14 13 12 11 10 9 8
VDD (+3 to +18V)
Q So D
Q̄ Ro
Q̄ Ro
Q So D
GND
1 2 3 4 5 6 7
CLOCK

DIRECT R-S FLIP FLOP

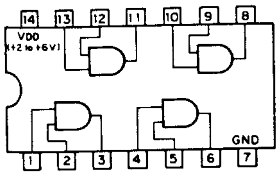
So	Ro	Q	Q̄
0	0	Qn	Q̄n
0	1	0	1
1	0	1	0
1	1	0	1

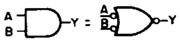
D-TYPE FLIP FLOP

CKn	CKn+1
D	Q
0	0
1	1

CLOCK CK; ⎍
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK
0; LOW LEVEL
1; HIGH LEVEL

TC74HC08F (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7

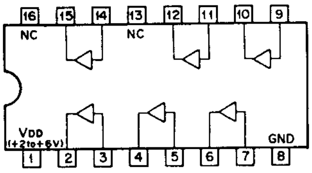


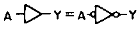
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74HC4050F (TOSHIBA) FLAT PACKAGE
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —


16
15
14
13
12
11
10
9
NC
NC
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7
8

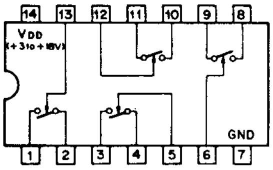


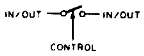
Y = A

A	Y
0	0
1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74HC4066F (TOSHIBA) FLAT PACKAGE
C-MOS BILATERAL ANALOG SWITCH
— TOP VIEW —

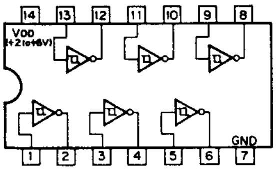

14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7

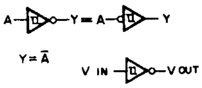

IN/OUT
IN/OUT
CONTROL

CONTROL	SWITCH
0	OFF
1	ON

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC74HC14F (TOSHIBA) FLAT PACKAGE
C-MOS SCHMITT TRIGGER INVERTER
— TOP VIEW —

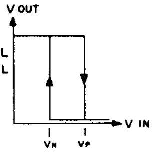

14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7


A
Y = A
Y
V IN
V OUT

$Y = \overline{A}$

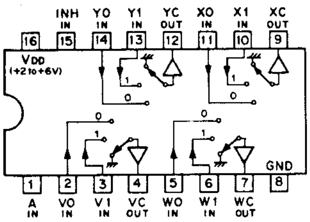
A	Y
0	1
1	0

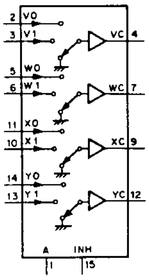
0 ; LOW LEVEL
1 ; HIGH LEVEL



VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

TC74HC157F (TOSHIBA) FLAT PACKAGE
C-MOS 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER
— TOP VIEW —

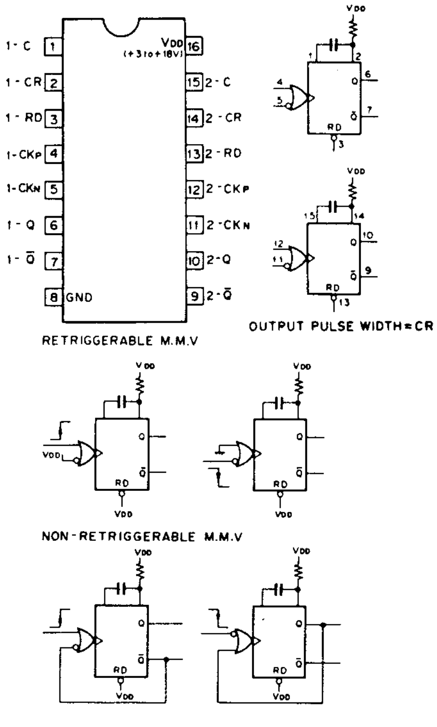

INH IN
Y0 IN
Y1 IN
YC OUT
X0 IN
X1 IN
XC OUT
16
15
14
13
12
11
10
9
VDD
(+2 to +6V)
1
0
GND
1
2
3
4
5
6
7
8
A IN
V0 IN
V1 IN
VC OUT
W0 IN
W1 IN
WC OUT


2
V0
3
V1
VC
4
5
W0
6
W1
WC
7
11
X0
10
X1
XC
9
14
Y0
13
Y1
YC
12
A
INH
1
15

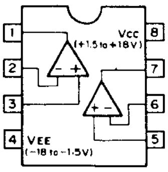
CONT. IN		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	GND

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

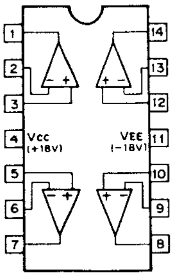
TC74HC4538F (TOSHIBA) FLAT PACKAGE
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —


1 - C
1 - CR
1 - RD
1 - CKP
1 - CKN
1 - Q
1 - Q̄
1
2
3
4
5
6
7
8
GND
VDD
(+3 to +18V)
16
15
14
13
12
11
10
9
2 - C
2 - CR
2 - RD
2 - CKP
2 - CKN
2 - Q
2 - Q̄
VDD
1
2
4
5
Q
Q̄
6
7
RD
3
VDD
15
14
12
11
Q
Q̄
10
9
RD
13
RETRIGGERABLE M.M.V
OUTPUT PULSE WIDTH = CR
VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD
NON-RETRIGGERABLE M.M.V
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

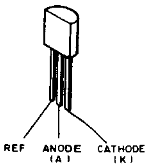
TL062CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(JFET INPUT)
— TOP VIEW —

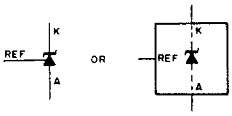

1
2
3
4
Vcc
(+1.5 to +18V)
8
7
6
5
VEE
(−18 to −1.5V)

TL064CNS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —

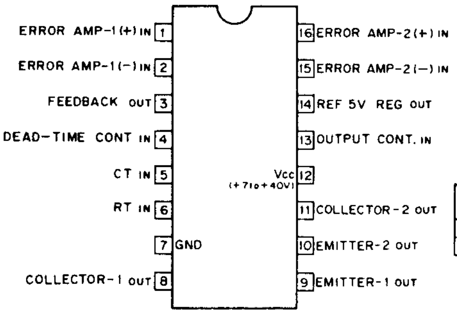

1
2
3
4
5
6
7
14
13
12
11
10
9
8
Vcc
(+18V)
VEE
(−18V)

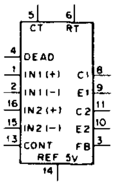
TL431CLPB (TI)
ADJUSTABLE PRECISION SHUNT REGULATOR


REF
ANODE
(A)
CATHODE
(K)


K
REF
A
OR
K
REF
A

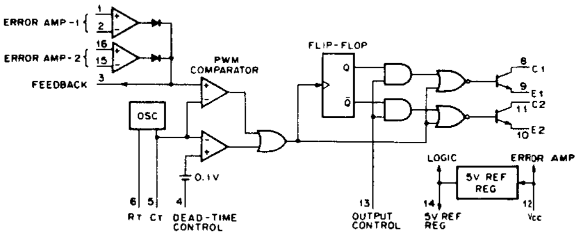
TL494CNS (TI) FLAT PACKAGE
PWM POWER CONTROL
— TOP VIEW —


ERROR AMP-1(+) IN 1
ERROR AMP-1(−) IN 2
FEEDBACK OUT 3
DEAD-TIME CONT IN 4
CT IN 5
RT IN 6
7 GND
COLLECTOR-1 OUT 8
16 ERROR AMP-2(+) IN
15 ERROR AMP-2(−) IN
14 REF 5V REG OUT
13 OUTPUT CONT. IN
Vcc (+7 to +40V) 12
11 COLLECTOR-2 OUT
10 EMITTER-2 OUT
9 EMITTER-1 OUT

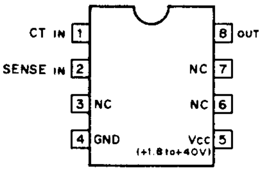

5
6
CT
RT
4
DEAD
1
IN1(+)
2
IN1(−)
16
IN2(+)
15
IN2(−)
13
CONT
C1
8
E1
9
C2
11
E2
10
FB
3
REF 5V
14

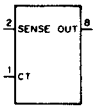
OUTPUT CONTROL	OUTPUT FUNCTION
0	PARALLEL
1	PUSH-PULL

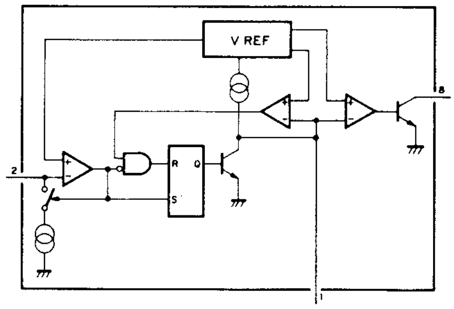
0 ; GROUNDED
1 ; CONNECTED TO PIN14


ERROR AMP-1
1
2
ERROR AMP-2
16
15
FEEDBACK
3
PWM COMPARATOR
OSC
0.1V
FLIP-FLOP
Q
Q̄
8
C1
9
E1
11
C2
10
E2
LOGIC
ERROR AMP
5V REF REG
6
5
4
RT
CT
DEAD-TIME CONTROL
13
OUTPUT CONTROL
14
5V REF REG
12
Vcc

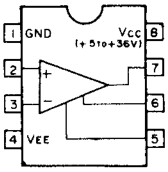
TL7700 CPS (TI) FLAT PACKAGE
VARIABLE SUPPLY VOLTAGE SUPERVISOR
— TOP VIEW —


CT IN 1
SENSE IN 2
3 NC
4 GND
8 OUT
NC 7
NC 6
Vcc (+1.8 to +40V) 5


2
SENSE
OUT
8
1
CT

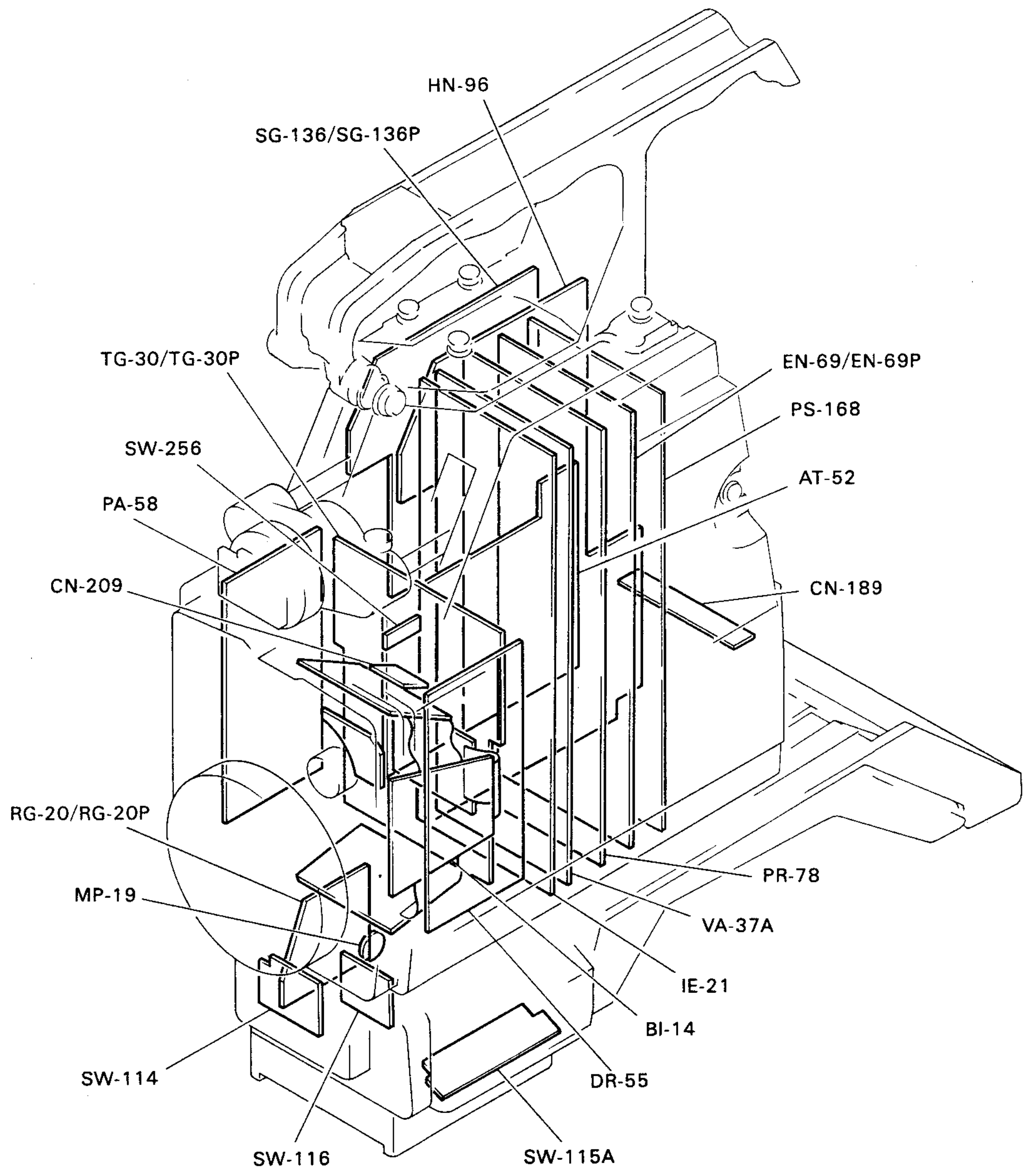

V REF
8
2
R
Q
S
1

uPC311G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW —

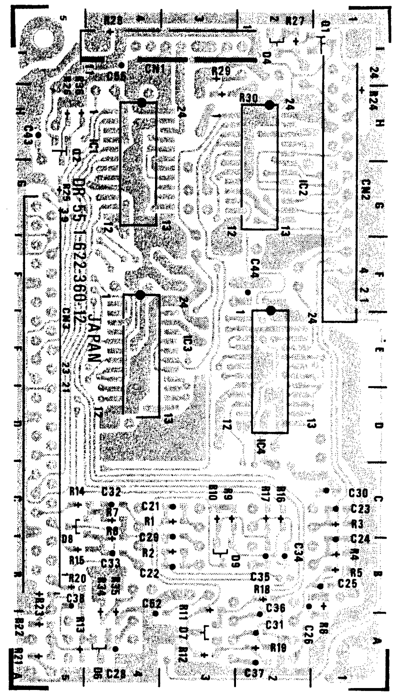

1 GND
2
3
4 VEE
Vcc
(+5 to +36V)
8
7
6
5

SECTION 7
SCHEMATIC DIAGRAM AND BOARD ILLUSTRATION

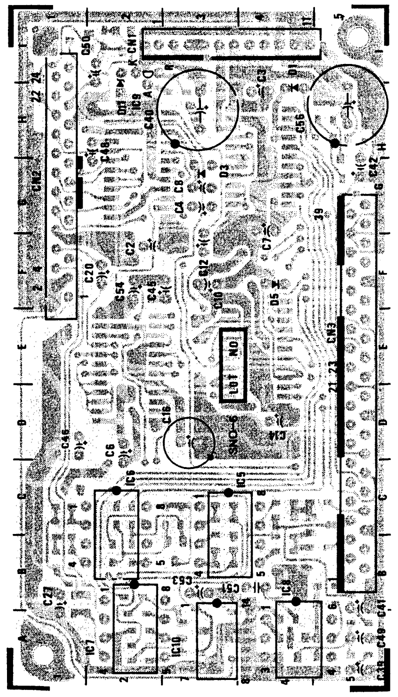
BOARD LAYOUT


HN-96
SG-136/SG-136P
TG-30/TG-30P
EN-69/EN-69P
PS-168
SW-256
AT-52
PA-58
CN-209
CN-189
RG-20/RG-20P
PR-78
MP-19
VA-37A
IE-21
BI-14
SW-114
DR-55
SW-116
SW-115A

DR-55 BOARD

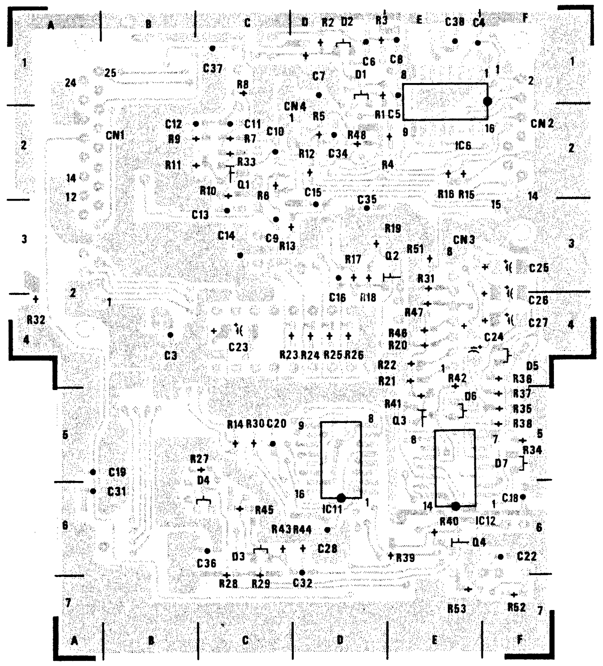

DR-55 1-622-360-12 JAPAN
CN1
CN2
IC1
IC2
IC3
IC4

1-622-360-12 SOLDERING SIDE

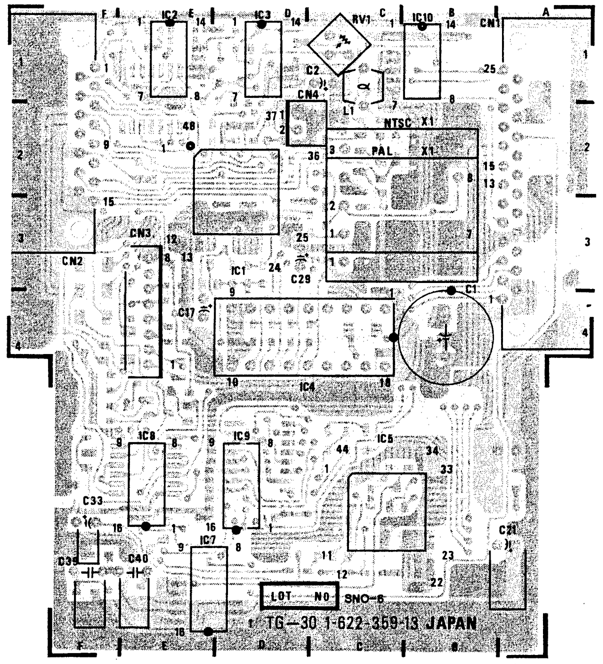

CN1
CN2
CN3
LOT NO

1-622-360-12 COMPONENT SIDE

TG-30/30P BOARD

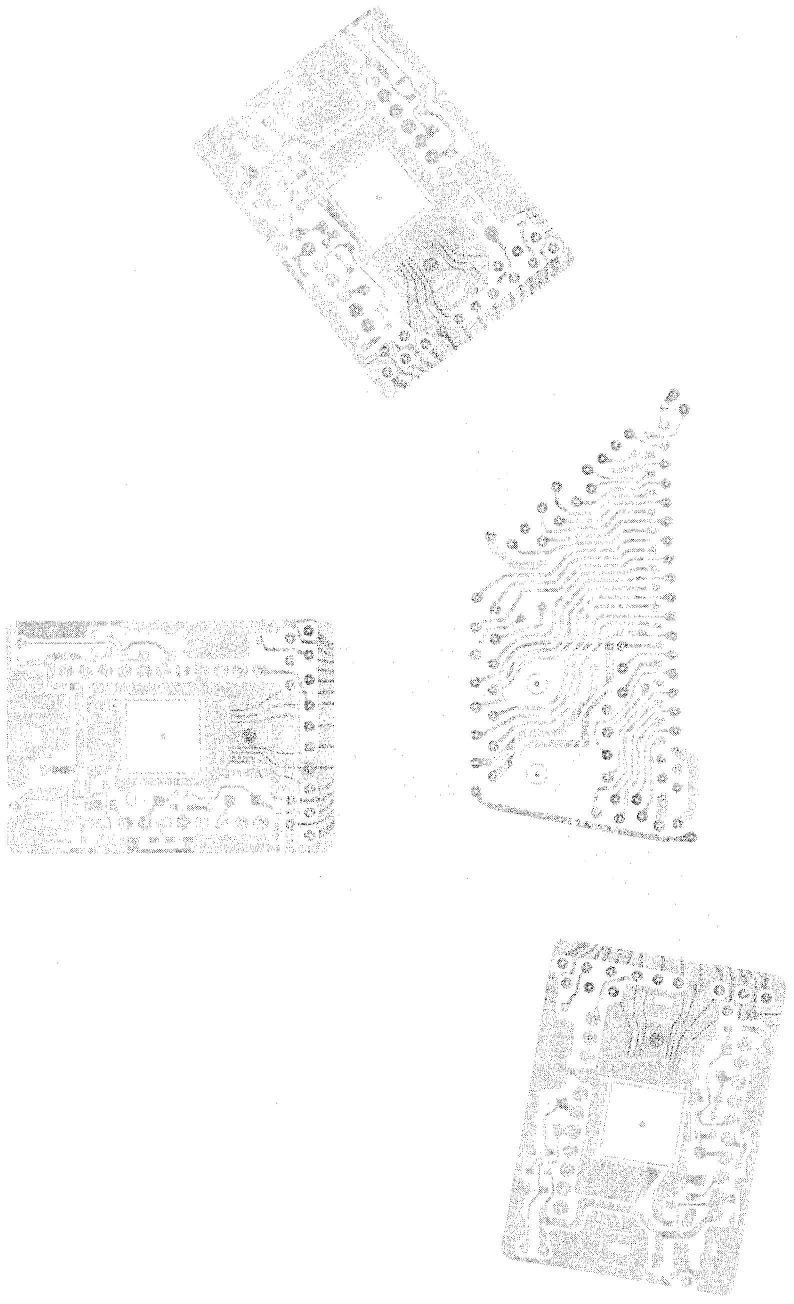

A
B
C
D
E
F
CN1
CN2
CN3
CN4
IC6
IC11
IC12

1-622-359-13 SOLDERING SIDE

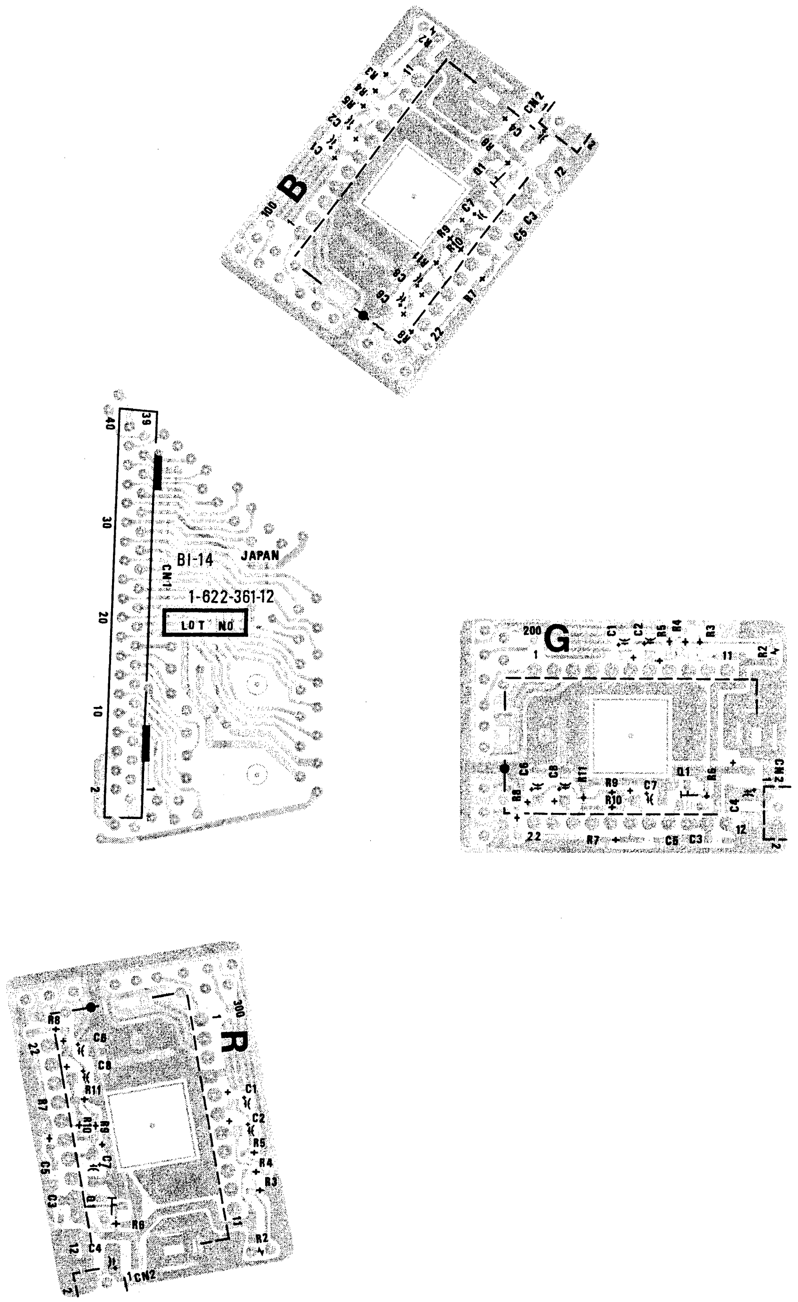

RV1
NTSC X1
PAL X1
CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
IC7
IC8
IC9
IC10
LOT NO
SNO-6
TG-30 1-622-359-13 JAPAN

1-622-359-13 COMPONENT SIDE

BI-14 BOARD

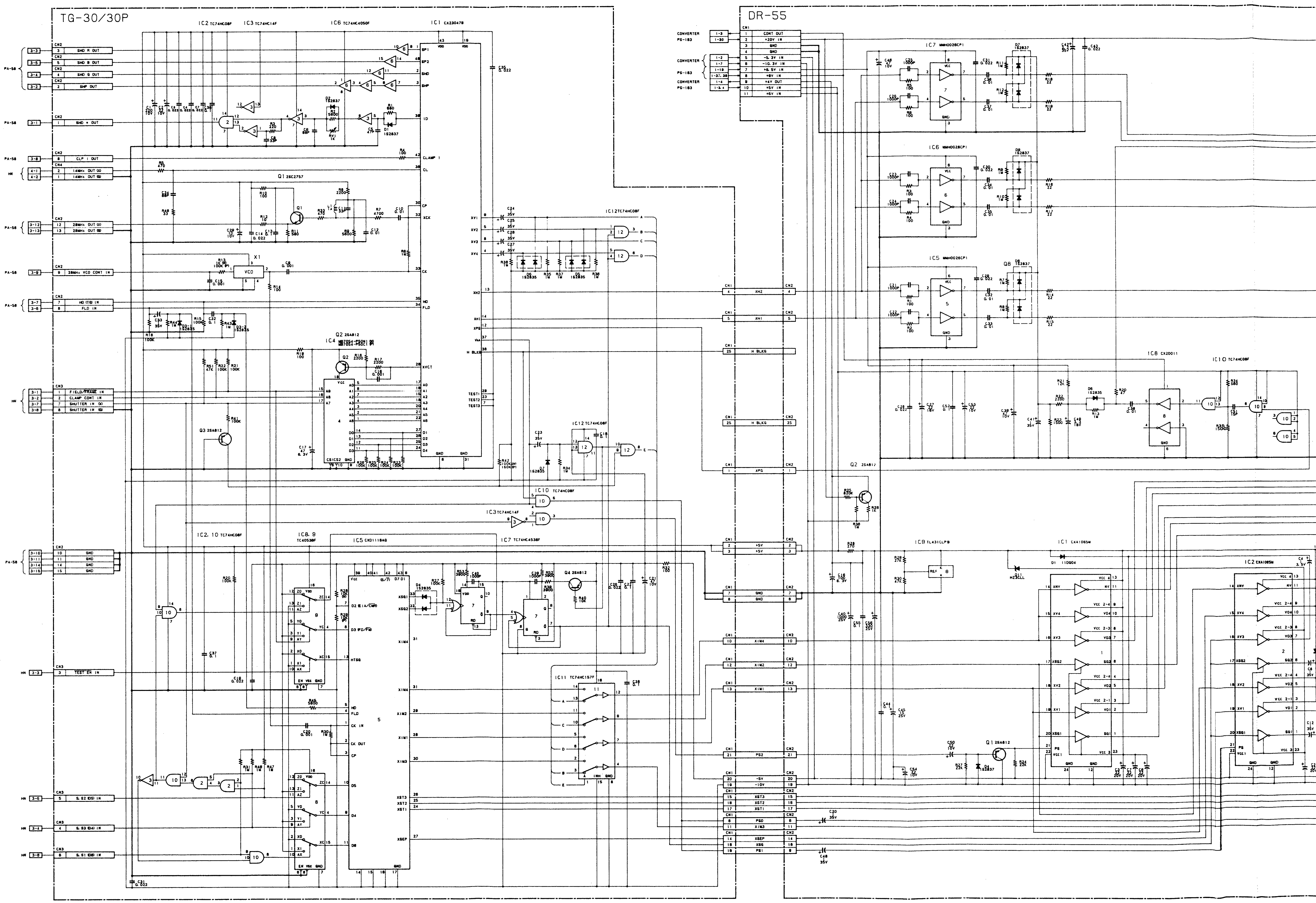


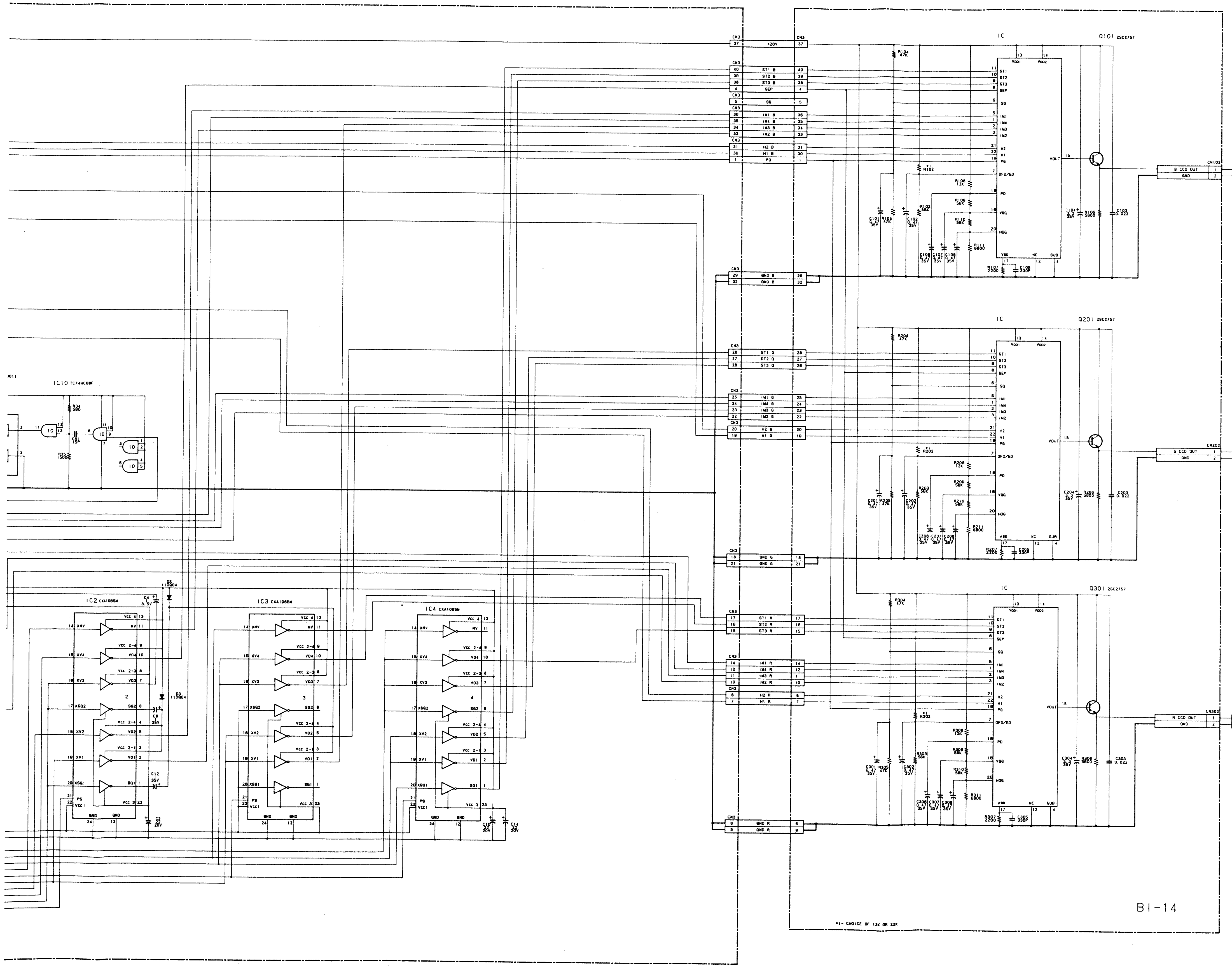
1-622-361-12 SOLDERING SIDE


B
CN1
BI-14 JAPAN
1-622-361-12
LOT NO
G
R
CN2

1-622-361-12 COMPONENT SIDE

CCD-BLOCK
BI-14 BOARD
DR-55 BOARD
TG-30/30P BOARD

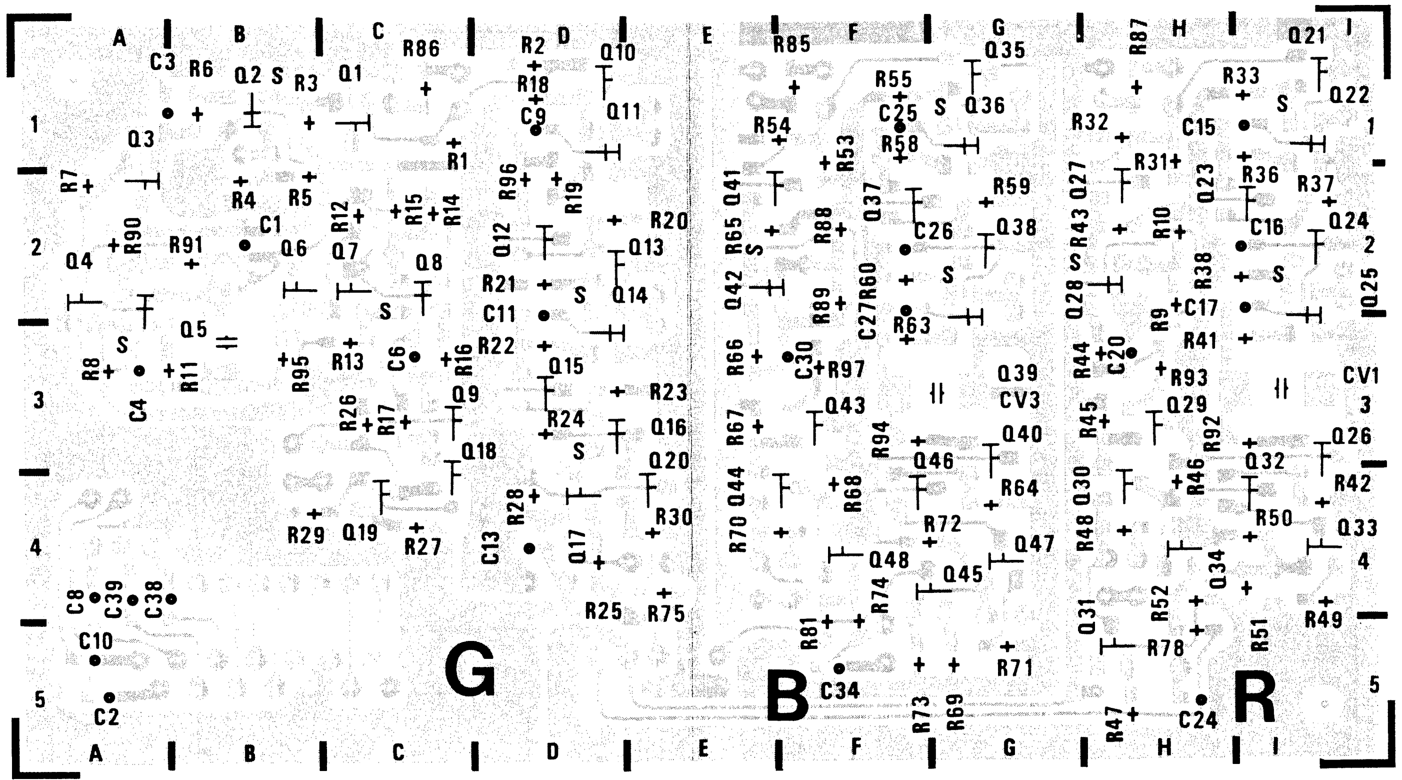

TG-30/30P
IC2 TC74HC08F
IC3 TC74HC14F
IC6 TC74HC4050F
IC1 CXD2304
IC4
IC12 TC74HC08F
IC10 TC74HC08F
IC3 TC74HC14F
IC2, 10 TC74HC08F
IC8, 9 TC4053BF
IC5 CXD1118AQ
IC7 TC74HC4538F
IC11 TC74HC157F
Q1 2SC2757
Q2 2SA812
Q3 2SA812
Q4 2SA812
X1
VCO
PA-58
HN
SHD R OUT
SHD B OUT
SHD G OUT
SHP OUT
SHD * OUT
CLP 1 OUT
14MHz OUT
28MHz OUT
28MHz VCO CONT IN
HD IN
FLD IN
FIELD/FRAME IN
CLAMP CONT IN
SHUTTER IN
GND
TEST EN IN
DR-55
CONVERTER
PS-183
CONT OUT
+20V IN
GND
-5.3V IN
-10.3V IN
+8.5V IN
+9V IN
+6V OUT
+5V IN
+6V IN
IC7 MMH0026CP1
IC6 MMH0026CP1
IC5 MMH0026CP1
IC8 CX20011
IC10 TC74HC08F
IC9 TL431CLP
IC1 CXA1085M
IC2 CXA1085M
Q1 2SA812
Q2 2SA812
Q8
XH2
XH1
H BLKG
XPG
+5V
GND
XIM4
XIM2
XIM1
PS2
-5V
-10V
XST3
XST2
XST1
PSO
XIM3
XSEP
XSG
PS1


IC10 TC74HC08F
IC2 CXA1085M
IC3 CXA1085M
IC4 CXA1085M
IC
Q101 2SC2757
Q201 2SC2757
Q301 2SC2757
CN3
CN102
CN202
CN302
B CCD OUT
G CCD OUT
R CCD OUT
GND
PA-58
BI-14
*1: CHOICE OF 12K OR 22K

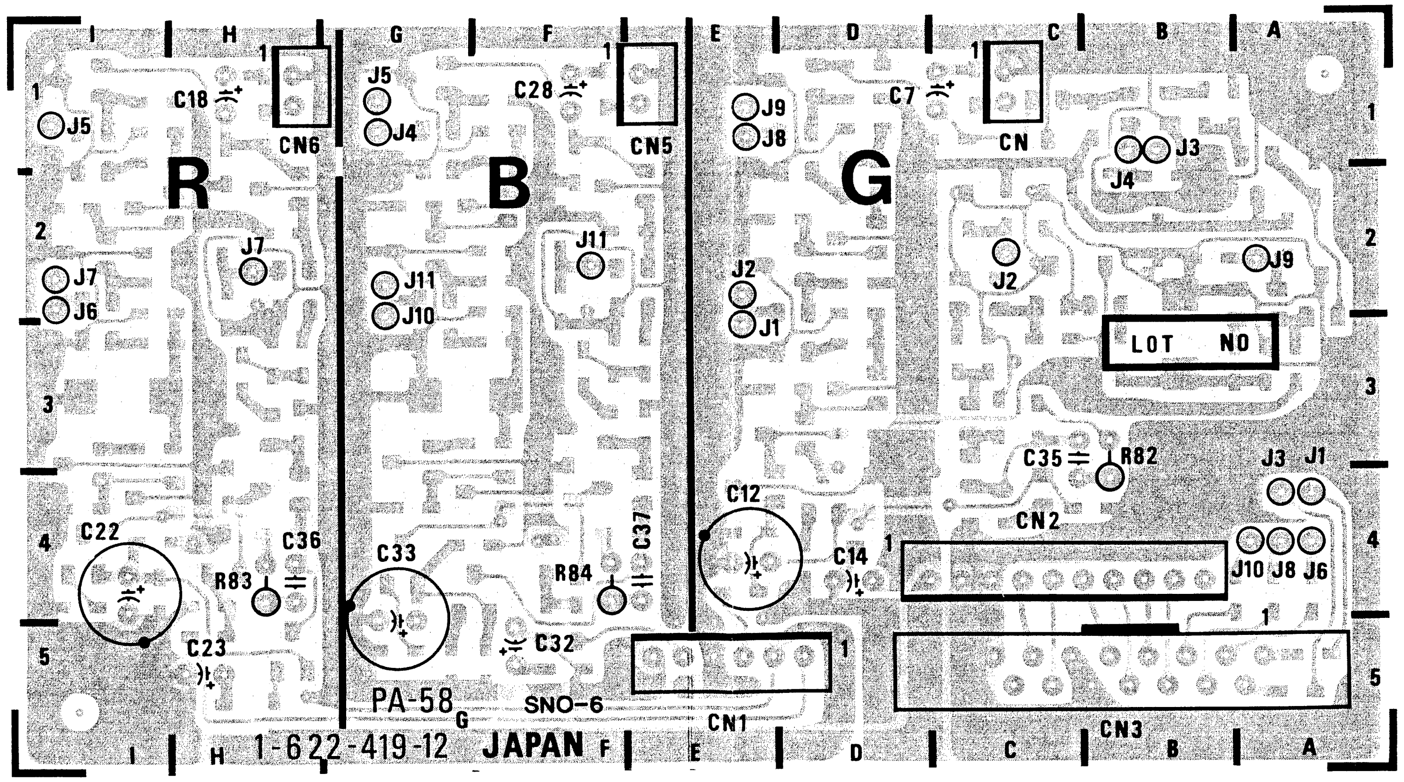
BI-14 BOARD
DR-55 BOARD
TG-30/30P BOARD

BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

PA-58 BOARD


A
B
C
D
E
F
G
H
I
1
2
3
4
5
G
B
R
CV1
CV3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q24
Q25
Q26
Q27
Q28
Q29
Q30
Q31
Q32
Q33
Q34
Q35
Q36
Q37
Q38
Q39
Q40
Q41
Q42
Q43
Q44
Q45
Q46
Q47
Q48
C1
C2
C3
C4
C6
C8
C9
C10
C11
C13
C15
C16
C17
C20
C24
C25
C26
C27
C30
C34
C38
C39

1-622-419-12 SOLDERING SIDE

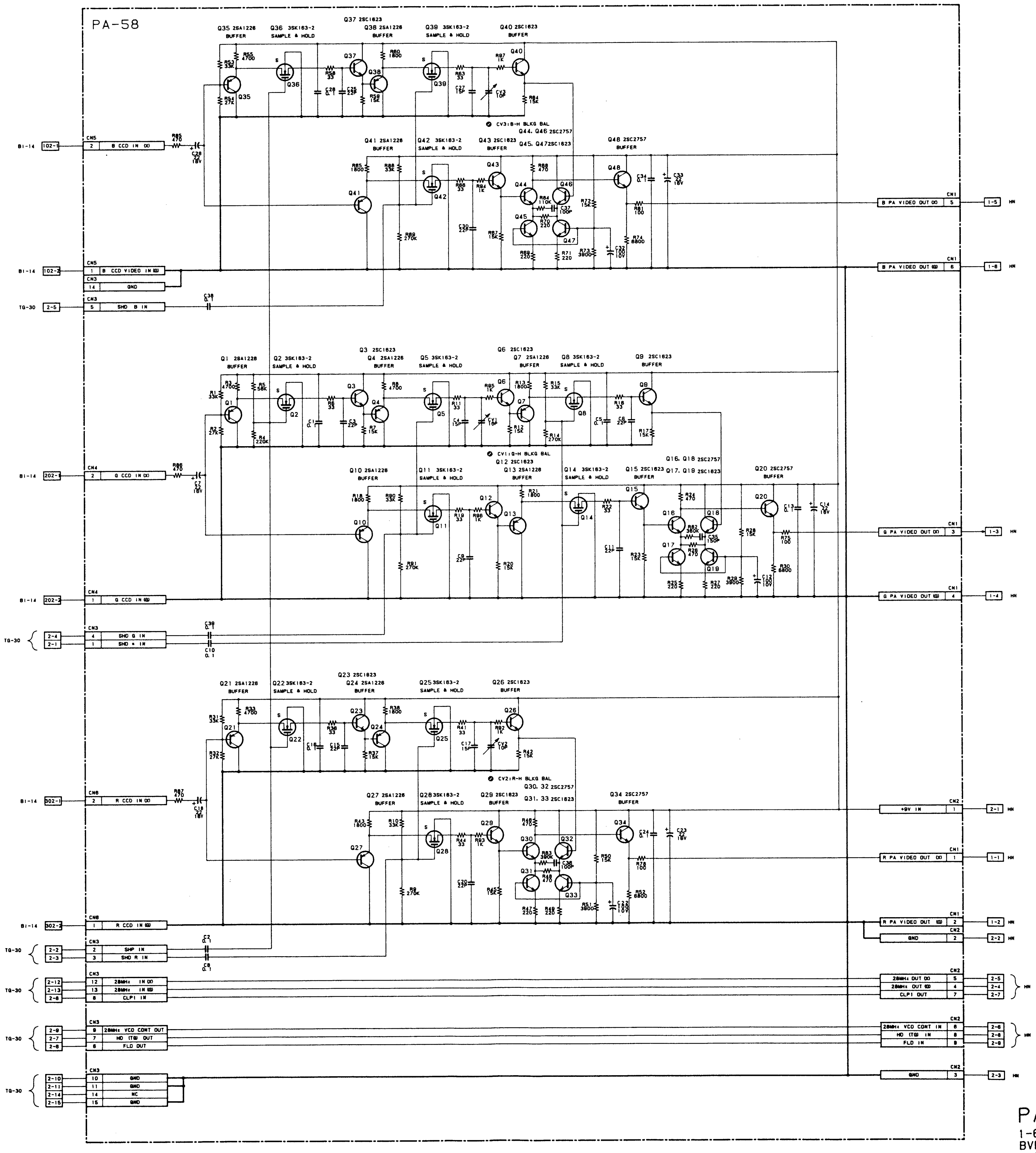

I
H
G
F
E
D
C
B
A
1
2
3
4
5
R
B
G
CN1
CN2
CN3
CN5
CN6
CN
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
C7
C12
C14
C18
C22
C23
C28
C32
C33
C35
C36
C37
R82
R83
R84
LOT NO
PA-58
SNO-6
1-622-419-12 JAPAN

1-622-419-12 COMPONENT SIDE

CN1	E-5
CN2	C-4
CN3	C-5
CN4	C-1
CN5	E-1
CN6	H-1
Q1	C-1
Q2	B-1
Q3	A-2
Q4	A-3
Q5	A-3
Q6	B-2
Q7	C-2
Q8	C-2
Q9	C-3
Q10	D-1
Q11	D-1
Q12	D-2
Q13	D-2
Q14	D-3
Q15	D-3
Q16	D-3
Q17	D-4
Q18	C-4
Q19	C-4
Q20	E-4
Q21	I-1
Q22	I-1
Q23	I-2
Q24	I-2
Q25	I-2
Q26	I-3
Q27	H-2
Q28	H-2
Q29	H-3
Q30	H-4
Q31	H-5
Q32	I-4
Q33	I-4
Q34	H-4
Q35	G-1
Q36	G-1
Q37	F-2
Q38	G-2
Q39	G-3
Q40	G-3
Q41	E-2
Q42	E-2
Q43	F-3
Q44	F-4
Q45	F-4
Q46	F-4
Q47	G-4
Q48	F-4

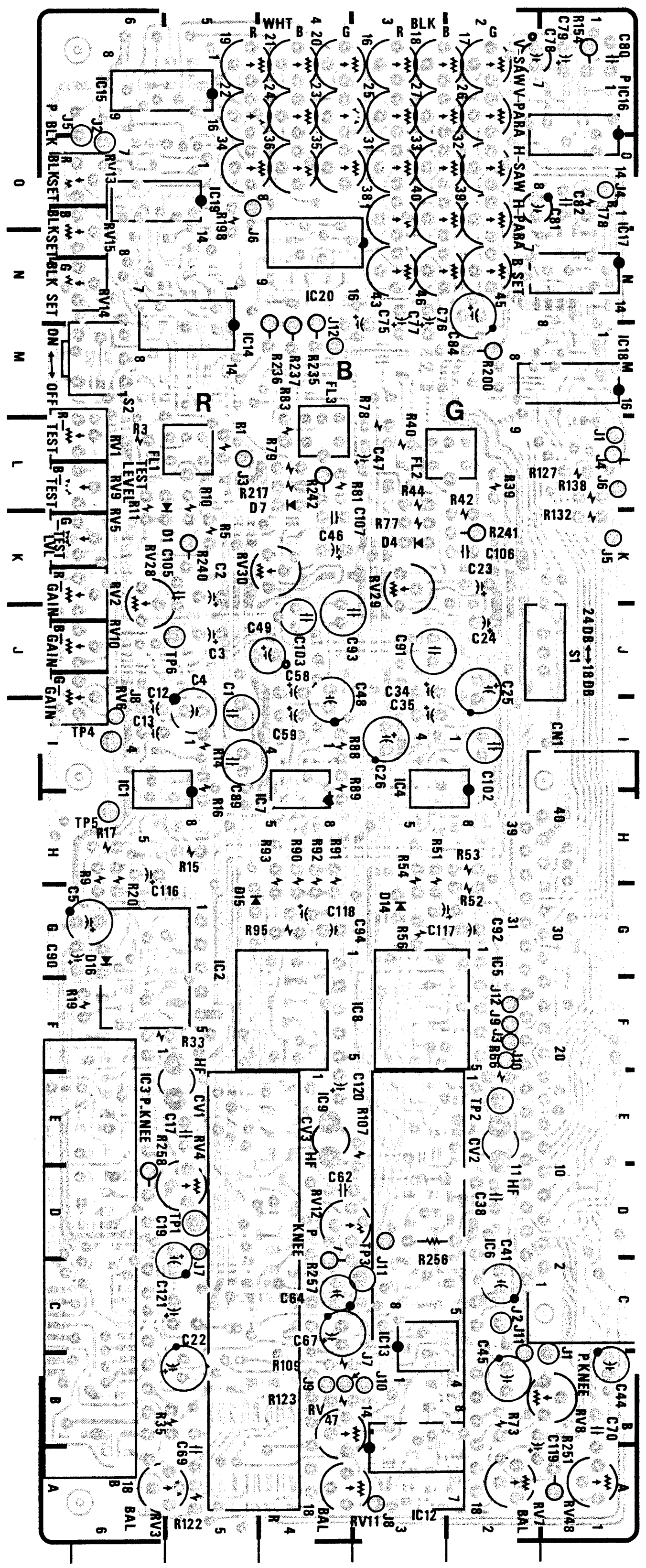
CN1 E-5
CN2 C-4
CN3 C-5
CN4 C-1
CN5 E-1
CN6 H-1
Q1 C-1
Q2 B-1
Q3 A-2
Q4 A-3
Q5 A-3
Q6 B-2
Q7 C-2
Q8 C-2
Q9 C-3
Q10 D-1
Q11 D-1
Q12 D-2
Q13 D-2
Q14 D-3
Q15 D-3
Q16 D-3
Q17 D-4
Q18 C-4
Q19 C-4
Q20 E-4
Q21 I-1
Q22 I-1
Q23 I-2
Q24 I-2
Q25 I-2
Q26 I-3
Q27 H-2
Q28 H-2
Q29 H-3
Q30 H-4
Q31 H-5
Q32 I-4
Q33 I-4
Q34 H-4
Q35 G-1
Q36 G-1
Q37 F-2
Q38 G-2
Q39 G-3
Q40 G-3
Q41 E-2
Q42 E-2
Q43 F-3
Q44 F-4
Q45 F-4
Q46 F-4
Q47 G-4
Q48 F-4

PA-58 BOARD


PA-58
Q35 2SA1226 BUFFER
Q36 3SK163-2 SAMPLE & HOLD
Q37 2SC1623
Q38 2SA1226 BUFFER
Q39 3SK163-2 SAMPLE & HOLD
Q40 2SC1623 BUFFER
CV3 B-H BLKG BAL
Q41 2SA1226 BUFFER
Q42 3SK163-2 SAMPLE & HOLD
Q43 2SC1623 BUFFER
Q44, Q46 2SC2757
Q45, Q47 2SC1623
Q48 2SC2757 BUFFER
Q1 2SA1226 BUFFER
Q2 3SK163-2 SAMPLE & HOLD
Q3 2SC1623
Q4 2SA1226 BUFFER
Q5 3SK163-2 SAMPLE & HOLD
Q6 2SC1623
Q7 2SA1226 BUFFER
Q8 3SK163-2 SAMPLE & HOLD
Q9 2SC1623 BUFFER
CV1 G-H BLKG BAL
Q10 2SA1226 BUFFER
Q11 3SK163-2 SAMPLE & HOLD
Q12 2SC1623
Q13 2SA1226 BUFFER
Q14 3SK163-2 SAMPLE & HOLD
Q15 2SC1623 BUFFER
Q16, Q18 2SC2757
Q17, Q19 2SC1623
Q20 2SC2757 BUFFER
Q21 2SA1226 BUFFER
Q22 3SK163-2 SAMPLE & HOLD
Q23 2SC1623
Q24 2SA1226 BUFFER
Q25 3SK163-2 SAMPLE & HOLD
Q26 2SC1623 BUFFER
CV2 R-H BLKG BAL
Q27 2SA1226 BUFFER
Q28 3SK163-2 SAMPLE & HOLD
Q29 2SC1623 BUFFER
Q30, 32 2SC2757
Q31, 33 2SC1623
Q34 2SC2757 BUFFER
BI-14 102-1 CN5 2 B CCD IN (X)
BI-14 102-2 CN5 1 B CCD VIDEO IN (G)
CN3 14 GND
TG-30 2-5 CN3 5 SHD B IN
BI-14 202-1 CN4 2 G CCD IN (X)
BI-14 202-2 CN4 1 G CCD IN (G)
TG-30 2-4 CN3 4 SHD G IN
TG-30 2-1 CN3 1
BI-14 302-1 CN6 2 R CCD IN (X)
BI-14 302-2 CN6 1 R CCD IN (G)
TG-30 2-2 CN3 2 SHP IN
TG-30 2-3 CN3 3 SHD R IN
TG-30 2-12 CN3 12 28MHz IN (X)
2-13 13 28MHz IN (G)
2-8 8 CLP1 IN
TG-30 2-9 CN3 9 28MHz VCO CONT OUT
2-7 7 HD (TG) OUT
2-6 6 FLD OUT
TG-30 2-10 CN3 10 GND
2-11 11 GND
2-14 14 NC
2-15 15 GND
CN1 B PA VIDEO OUT (X) 5 1-5 HN
CN1 B PA VIDEO OUT (G) 6 1-6 HN
CN1 G PA VIDEO OUT (X) 3 1-3 HN
CN1 G PA VIDEO OUT (G) 4 1-4 HN
CN2 +9V IN 1 2-1 HN
CN1 R PA VIDEO OUT (X) 1 1-1 HN
CN1 R PA VIDEO OUT (G) 2 1-2 HN
CN2 GND 2 2-2 HN
CN2 28MHz OUT (X) 5 2-5
28MHz OUT (G) 4 2-4
CLP1 OUT 7 2-7 HN
CN2 28MHz VCO CONT IN 6 2-6
HD (TG) IN 8 2-8
FLD IN 9 2-9 HN
CN2 GND 3 2-3 HN

PA-58 BOARD
1-622-419-12
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

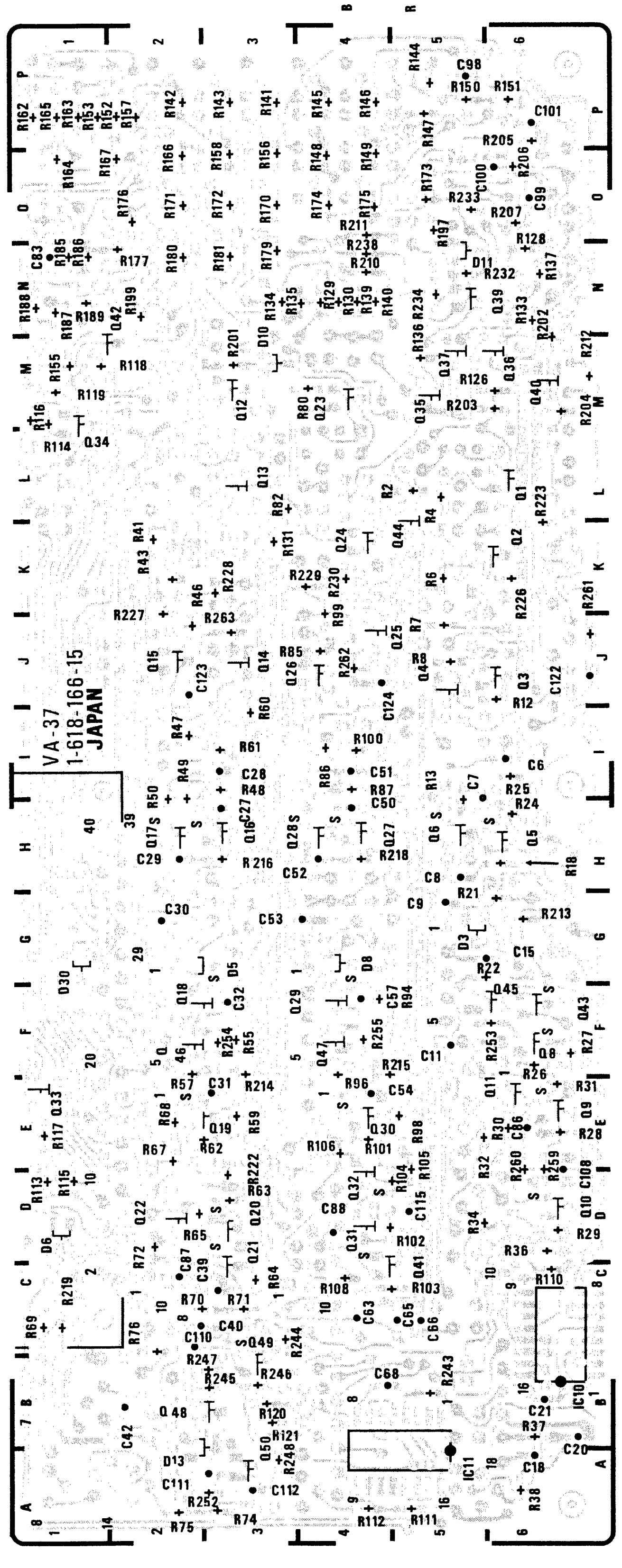
VA-37A BOARD


WHT
BLK
R
B
G
V-SAW
V-PARA
H-SAW
H-PARA
BLK SET
P BLK
ON ↔ OFF
TEST
LEVEL
GAIN
24DB↔18DB
S1
S2
BAL
P. KNEE
KNEE
HF
CN1
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
TP1
TP2
TP3
TP4
TP5
TP6
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6

1-618-166-15 COMPONENT SIDE

CN1	F-1
CV1	E-5
CV2	D-2
CV3	D-4
D1	K-5
D3	G-5
D4	K-3
D5	F-2
D6	D-1
D7	K-4
D8	F-4
D10	M-3
D11	N-5
D13	A-2
D14	G-3
D15	G-4
D16	F-6
D30	G-1
FL1	L-5
FL2	L-2
FL3	L-4
IC1	H-6
IC2	G-5
IC3	C-6
IC4	H-3
IC5	F-2
IC6	C-2
IC7	H-4
IC8	F-4
IC9	C-4
IC10	C-6
IC11	A-5
IC12	A-3
IC13	B-3
IC14	M-5
IC15	P-5
IC16	P-1
IC17	N-1
IC18	M-1
IC19	O-6
IC20	N-4
Q1	L-6
Q2	K-6
Q3	J-6
Q4	J-5
Q5	H-6
Q6	H-5
Q8	F-6
Q9	E-6
Q10	D-6
Q11	E-6
Q12	M-3
Q13	L-3
Q14	J-3
Q15	J-2
Q16	H-3
Q17	H-2
Q18	F-2
Q19	E-2
Q20	D-3
Q21	C-3
Q22	D-2
Q23	M-4
Q24	K-4
Q25	J-4
Q26	J-4
Q27	H-4
Q28	H-4
Q29	F-4
Q30	E-4
Q31	D-4
Q32	D-4
Q33	E-1
Q34	M-1
Q35	M-5
Q36	M-6
Q37	M-5
Q39	N-5
Q40	M-6
Q41	C-4
Q42	M-1
Q43	F-6
Q44	K-5
Q45	F-6
Q46	F-2
Q47	F-4
Q48	B-2
Q49	B-3
Q50	A-3

RV1	L-6
RV2	K-6
RV3	A-5
RV4	D-5
RV5	K-6
RV6	I-6
RV7	A-2
RV8	B-1
RV9	L-6
RV10	J-6
RV11	A-4
RV12	D-4
RV13	D-6
RV14	N-6
RV15	N-6
RV16	P-3
RV17	P-2
RV18	P-3
RV19	P-5
RV20	P-4
RV21	P-5
RV22	P-5
RV23	P-4
RV24	P-4
RV25	P-3
RV26	P-2
RV27	P-3
RV28	J-6
RV29	K-3
RV30	K-4
RV31	O-3
RV32	O-2
RV33	O-3
RV34	O-5
RV35	O-4
RV36	O-4
RV38	O-3
RV39	O-2
RV40	O-3
RV43	N-3
RV45	N-2
RV46	N-3
RV47	B-4
RV48	A-1
S1	J-1
S2	M-6
TP1	D-5
TP2	E-2
TP3	C-3
TP4	I-6
TP5	H-6
TP6	J-5

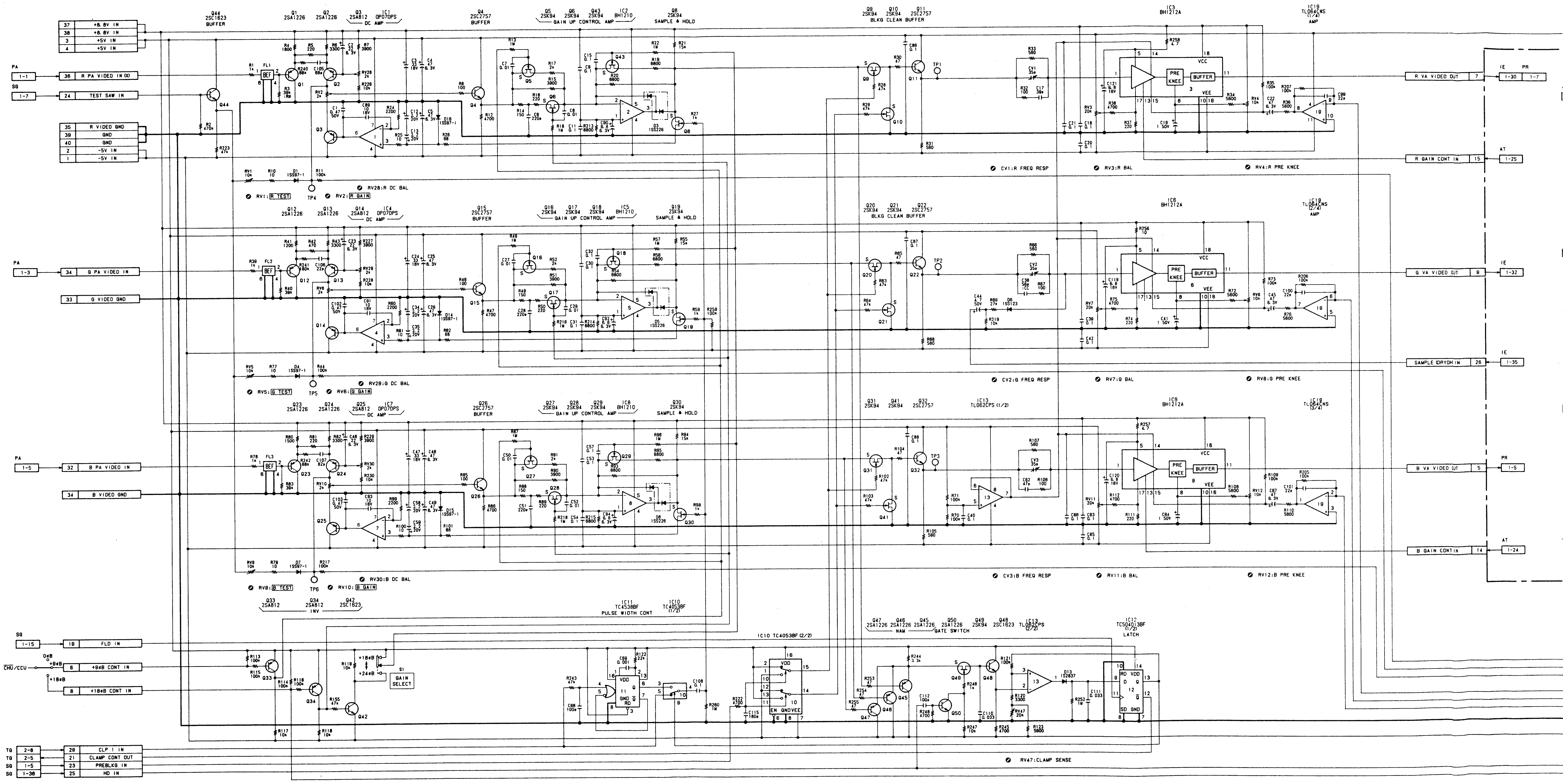

VA-37
1-618-166-15
JAPAN
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6

1-618-166-15 SOLDERING SIDE

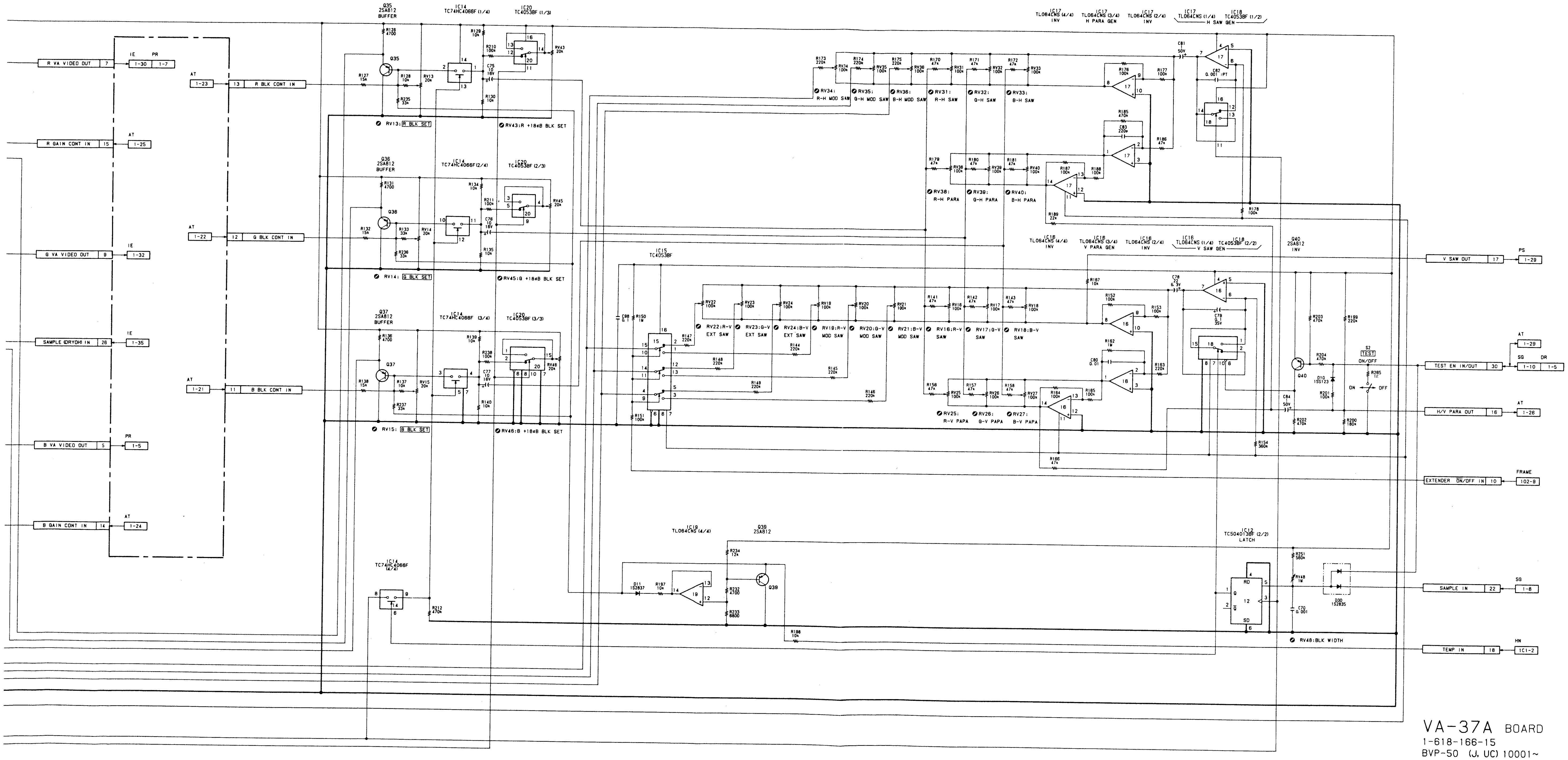
CN1	F-1
CV1	E-5
CV2	D-2
CV3	D-4
D1	K-5
D3	G-5
D4	K-3
D5	F-2
D6	D-1
D7	K-4
D8	F-4
D10	M-3
D11	N-5
D13	A-2
D14	G-3
D15	G-4
D16	F-6
D30	G-1
FL1	L-5
FL2	L-2
FL3	L-4
IC1	H-6
IC2	G-5
IC3	C-6
IC4	H-3
IC5	F-2
IC6	C-2
IC7	H-4
IC8	F-4
IC9	C-4
IC10	C-6
IC11	A-5
IC12	A-3
IC13	B-3
IC14	M-5
IC15	P-5
IC16	P-1
IC17	N-1
IC18	M-1
IC19	O-6
IC20	N-4
Q1	L-6
Q2	K-6
Q3	J-6
Q4	J-5
Q5	H-6
Q6	H-5
Q8	F-6
Q9	E-6
Q10	D-6
Q11	E-6
Q12	M-3
Q13	L-3
Q14	J-3
Q15	J-2
Q16	H-3
Q17	H-2
Q18	F-2
Q19	E-2
Q20	D-3
Q21	C-3
Q22	D-2
Q23	M-4
Q24	K-4
Q25	J-4
Q26	J-4
Q27	H-4
Q28	H-4
Q29	F-4
Q30	E-4
Q31	D-4
Q32	D-4
Q33	E-1
Q34	M-1
Q35	M-5
Q36	M-6
Q37	M-5
Q39	N-5
Q40	M-6
Q41	C-4
Q42	M-1
Q43	F-6
Q44	K-5
Q45	F-6
Q46	F-2
Q47	F-4
Q48	B-2
Q49	B-3
Q50	A-3

RV1	L-6
RV2	K-6
RV3	A-5
RV4	D-5
RV5	K-6
RV6	I-6
RV7	A-2
RV8	B-1
RV9	L-6
RV10	J-6
RV11	A-4
RV12	D-4
RV13	D-6
RV14	N-6
RV15	N-6
RV16	P-3
RV17	P-2
RV18	P-3
RV19	P-5
RV20	P-4
RV21	P-5
RV22	P-5
RV23	P-4
RV24	P-4
RV25	P-3
RV26	P-2
RV27	P-3
RV28	J-6
RV29	K-3
RV30	K-4
RV31	O-3
RV32	O-2
RV33	O-3
RV34	O-5
RV35	O-4
RV36	O-4
RV38	O-3
RV39	O-2
RV40	O-3
RV43	N-3
RV45	N-2
RV46	N-3
RV47	B-4
RV48	A-1
S1	J-1
S2	M-6
TP1	D-5
TP2	E-2
TP3	C-3
TP4	I-6
TP5	H-6
TP6	J-5

VA-37A BOARD



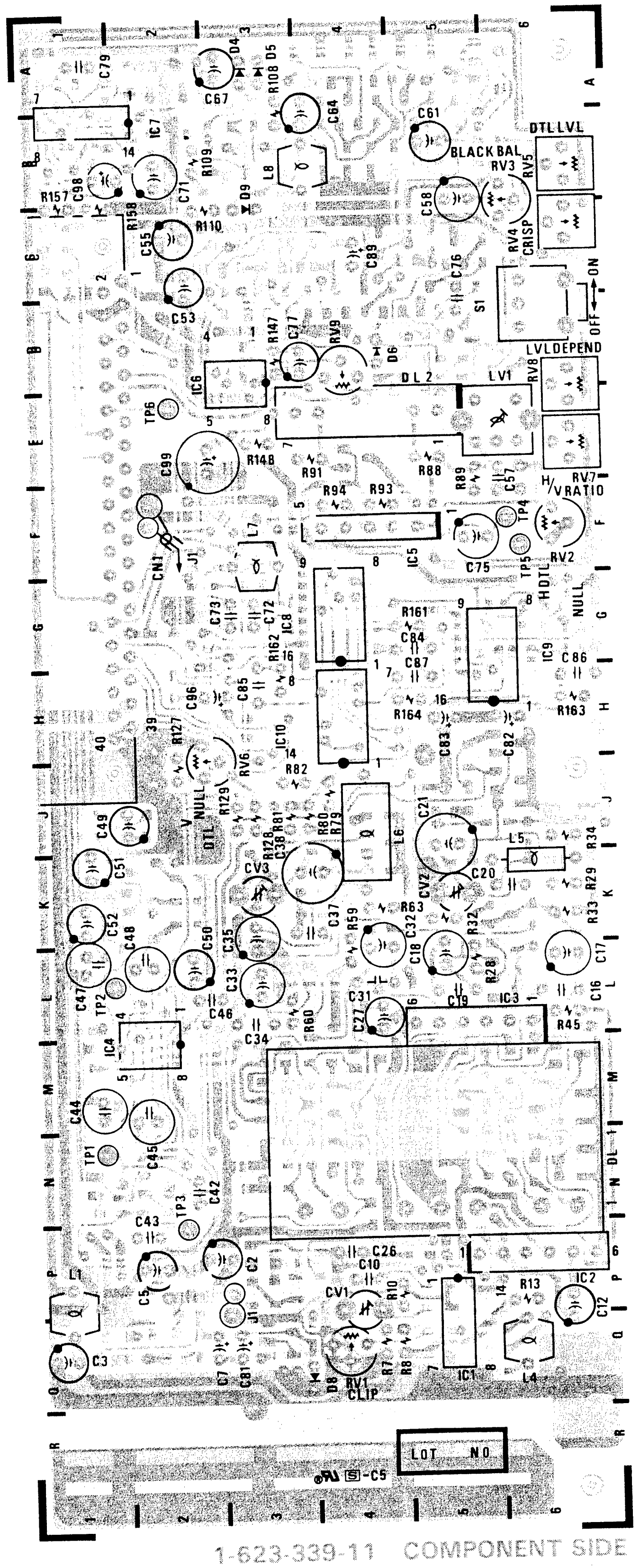
+8.8V IN
+5V IN
R PA VIDEO IN (X0)
TEST SAW IN
R VIDEO GND
GND
-5V IN
Q44 2SC1623 BUFFER
Q1 2SA1226
Q2 2SA1226
Q3 2SAB12
IC1 OP07DPS
DC AMP
Q4 2SC2757 BUFFER
Q5 2SK94
Q6 2SK94
Q43 2SK94
IC2 BH1210
GAIN UP CONTROL AMP
Q8 2SK94 SAMPLE & HOLD
Q9 2SK94
Q10 2SK94
Q11 2SC2757
BLKG CLEAN BUFFER
IC3 BH1212A
IC19 TL064CNS (1/4) AMP
PRE KNEE
BUFFER
VCC
VEE
R VA VIDEO OUT
R GAIN CONT IN
RV1:R TEST
RV2:R GAIN
RV28:R DC BAL
CV1:R FREQ RESP
RV3:R BAL
RV4:R PRE KNEE
G PA VIDEO IN
G VIDEO GND
Q12 2SA1226
Q13 2SA1226
Q14 2SAB12
IC4 OP07DPS
Q15 2SC2757 BUFFER
Q16 2SK94
Q17 2SK94
Q18 2SK94
IC5 BH1210
Q19 2SK94 SAMPLE & HOLD
Q20 2SK94
Q21 2SK94
Q22 2SC2757
IC6 BH1212A
IC18 TL064CNS (2/4) AMP
G VA VIDEO OUT
SAMPLE (DRYDH) IN
RV5:G TEST
RV6:G GAIN
RV29:G DC BAL
CV2:G FREQ RESP
RV7:G BAL
RV8:G PRE KNEE
B PA VIDEO IN
B VIDEO GND
Q23 2SA1226
Q24 2SA1226
Q25 2SAB12
IC7 OP07DPS
Q26 2SC2757 BUFFER
Q27 2SK94
Q28 2SK94
Q29 2SK94
IC8 BH1210
Q30 2SK94 SAMPLE & HOLD
Q31 2SK94
Q41 2SK94
Q32 2SC2757
IC13 TL062CPS (1/2)
IC9 BH1212A
IC18 TL064CNS (3/4)
B VA VIDEO OUT
B GAIN CONT IN
RV9:B TEST
RV10:B GAIN
RV30:B DC BAL
CV3:B FREQ RESP
RV11:B BAL
RV12:B PRE KNEE
Q33 2SAB12
Q34 2SAB12
Q42 2SC1623
INV
IC11 TC4538BF PULSE WIDTH CONT
IC10 TC4053BF (1/2)
IC10 TC4053BF (2/2)
Q47 2SA1226
Q46 2SA1226
Q45 2SA1226
Q50 2SA1226
Q49 2SK94
Q48 2SC1623
TL062CPS (2/2)
NAM
GATE SWITCH
IC12 TC5040136F (1/2) LATCH
FLD IN
+9dB CONT IN
+18dB CONT IN
CHU/CCU
GAIN SELECT
CLP 1 IN
CLAMP CONT OUT
PREBLKG IN
HD IN
RV47:CLAMP SENSE
PA
SG
TG
IE
AT
PR


R VA VIDEO OUT 7
IE PR
1-30 1-7
AT
1-23
13 R BLK CONT IN
R GAIN CONT IN 15
AT
1-25
AT
1-22
12 G BLK CONT IN
G VA VIDEO OUT 9
IE
1-32
SAMPLE (DRYDH) IN 28
IE
1-35
AT
1-21
11 B BLK CONT IN
B VA VIDEO OUT 5
PR
1-5
B GAIN CONT IN 14
AT
1-24
Q35 2SA812 BUFFER
IC14 TC74HC4066BF (1/4)
IC20 TC4053BF (1/3)
RV13: R BLK SET
RV43: R +18dB BLK SET
Q36 2SA812 BUFFER
IC14 TC74HC4066BF (2/4)
IC20 TC4053BF (2/3)
RV14: G BLK SET
RV45: G +18dB BLK SET
Q37 2SA812 BUFFER
IC14 TC74HC4066F (3/4)
IC20 TC4053BF (3/3)
RV15: B BLK SET
RV46: B +18dB BLK SET
IC14 TC74HC4066F (4/4)
IC15 TC4053BF
IC17 TL064CNS (4/4) INV
IC17 TL064CNS (3/4) H PARA GEN
IC17 TL064CNS (2/4) INV
IC17 TL064CNS (1/4)
IC18 TC4053BF (1/2)
H SAW GEN
RV34: R-H MOD SAW
RV35: G-H MOD SAW
RV36: B-H MOD SAW
RV31: R-H SAW
RV32: G-H SAW
RV33: B-H SAW
RV38: R-H PARA
RV39: G-H PARA
RV40: B-H PARA
IC18 TL064CNS (4/4) INV
IC18 TL064CNS (3/4) V PARA GEN
IC18 TL064CNS (2/4) INV
IC16 TL064CNS (1/4)
IC18 TC4053BF (2/2)
V SAW GEN
Q40 2SA812 INV
RV22: R-V EXT SAW
RV23: G-V EXT SAW
RV24: B-V EXT SAW
RV18: R-V MOD SAW
RV20: G-V MOD SAW
RV21: B-V MOD SAW
RV16: R-V SAW
RV17: G-V SAW
RV18: B-V SAW
RV25: R-V PAPA
RV26: G-V PAPA
RV27: B-V PAPA
V SAW OUT 17
PS
1-29
S2 TEST ON/OFF
ON
OFF
TEST EN IN/OUT 30
AT
1-29
SG DR
1-10 1-5
H/V PARA OUT 16
AT
1-26
EXTENDER ON/OFF IN 10
FRAME
102-8
IC19 TL064CNS (4/4)
Q39 2SA812
IC12 TC5040138F (2/2) LATCH
RV48: BLK WIDTH
SAMPLE IN 22
SG
1-8
TEMP IN 18
MN
1C1-2

VA-37A BOARD

1-618-166-15
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

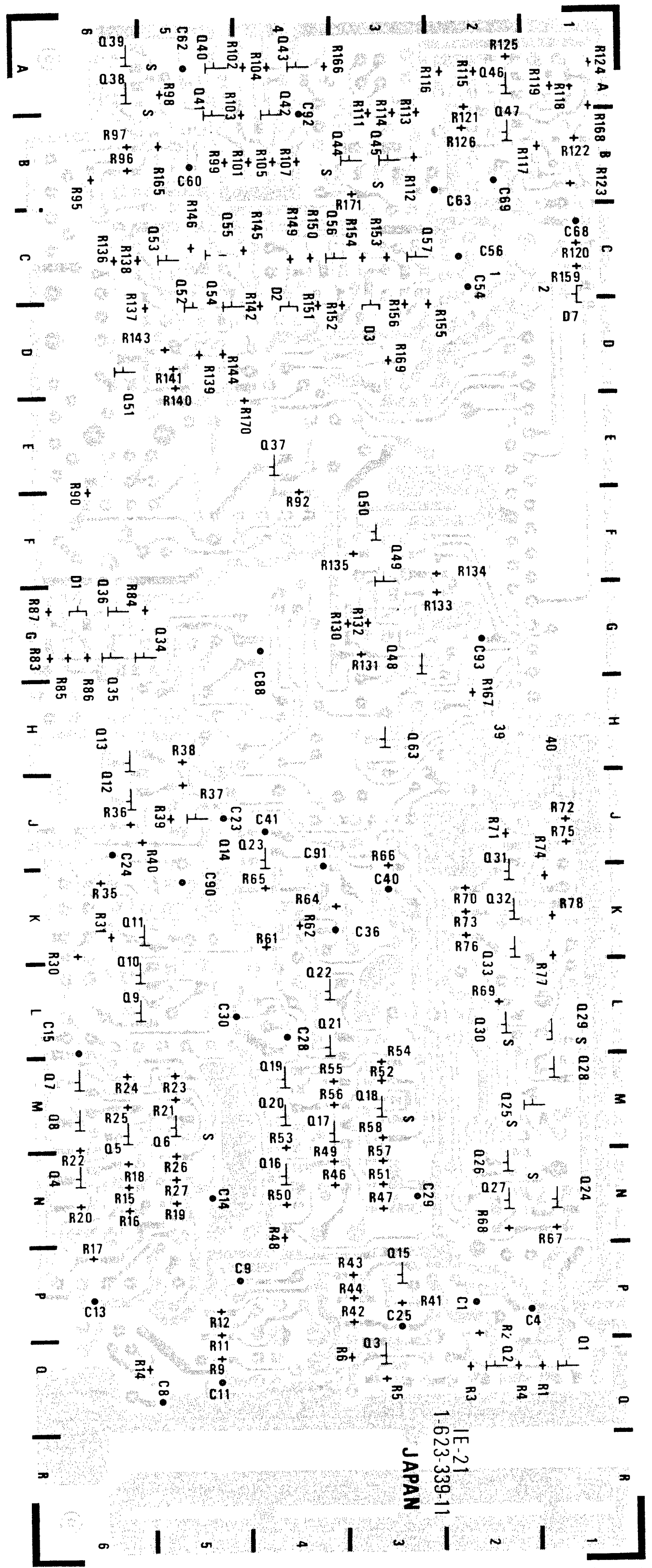
IE-21/21P BOARD


BLACK BAL
RV3
RV5
DTL LVL
RV4
CRISP
S1
OFF
ON
LVL DEPEND
RV8
DL2
LV1
RV7
H/V RATIO
HDTL NULL
RV2
DTL NULL
RV6
CV1
CV2
CV3
RV1
CLIP
LOT NO
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
1
2
3
4
5
6

1-623-339-11 COMPONENT SIDE

CV1	K-2
CV2	K-5
D1	G-6
D2	D-4
D3	D-3
D4	A-3
D5	A-3
D6	D-5
D7	C-1
D8	Q-3
D9	C-3
DL1	M-1
DL2	E-6
IC1	Q-5
IC2	P-6
IC3	L-5
IC4	M-2
IC5	F-4
IC6	D-3
IC7	B-1
IC8	G-4
IC9	G-6
IC10	H-4
LV1	E-6
Q1	O-1
Q2	O-2
Q3	O-3
Q4	N-6
Q5	M-6
Q6	M-5
Q7	M-6
Q8	M-6
Q9	L-6
Q10	L-6
Q11	K-6
Q12	J-6
Q13	H-6
Q14	J-5
Q15	P-3
Q16	N-4
Q17	M-4
Q18	M-3
Q19	M-4
Q20	M-4
Q21	L-4
Q22	L-4
Q23	J-4
Q24	N-1
Q25	M-2
Q26	N-2
Q27	N-2
Q28	M-1
Q29	L-1
Q30	L-2
Q31	K-2
Q32	K-2
Q33	K-2
Q34	G-6
Q35	G-6
Q36	G-6
Q37	E-4
Q38	A-6
Q39	A-6
Q40	A-5
Q41	B-5
Q42	B-4
Q43	A-4
Q44	B-3
Q45	B-3
Q46	A-2
Q47	B-2
Q48	G-3
Q49	F-3
Q50	F-3
Q51	D-6
Q52	D-5
Q53	C-5
Q54	D-5
Q55	C-5
Q57	C-3
Q58	C-4
Q63	H-3
RV1	Q-4
RV2	F-6
RV4	C-6
RV5	B-6
RV6	J-3
RV7	E-6
RV8	E-6
RV9	D-4
S1	D-6

TP1	N-1
TP2	L-1
TP3	P-2
TP4	F-6
TP5	F-6
TP6	E-2

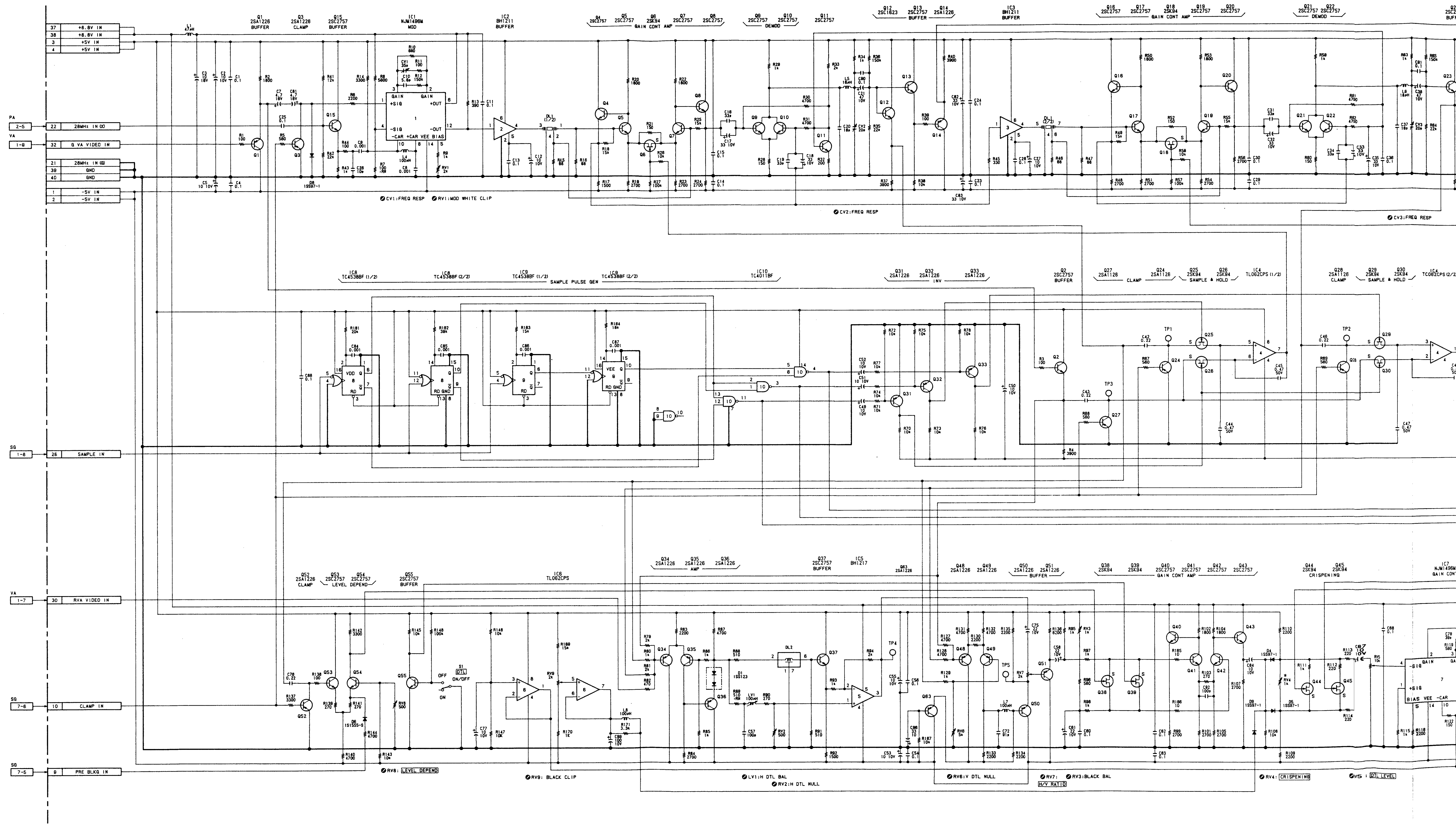

IE-21
1-623-339-11
JAPAN
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
1
2
3
4
5
6

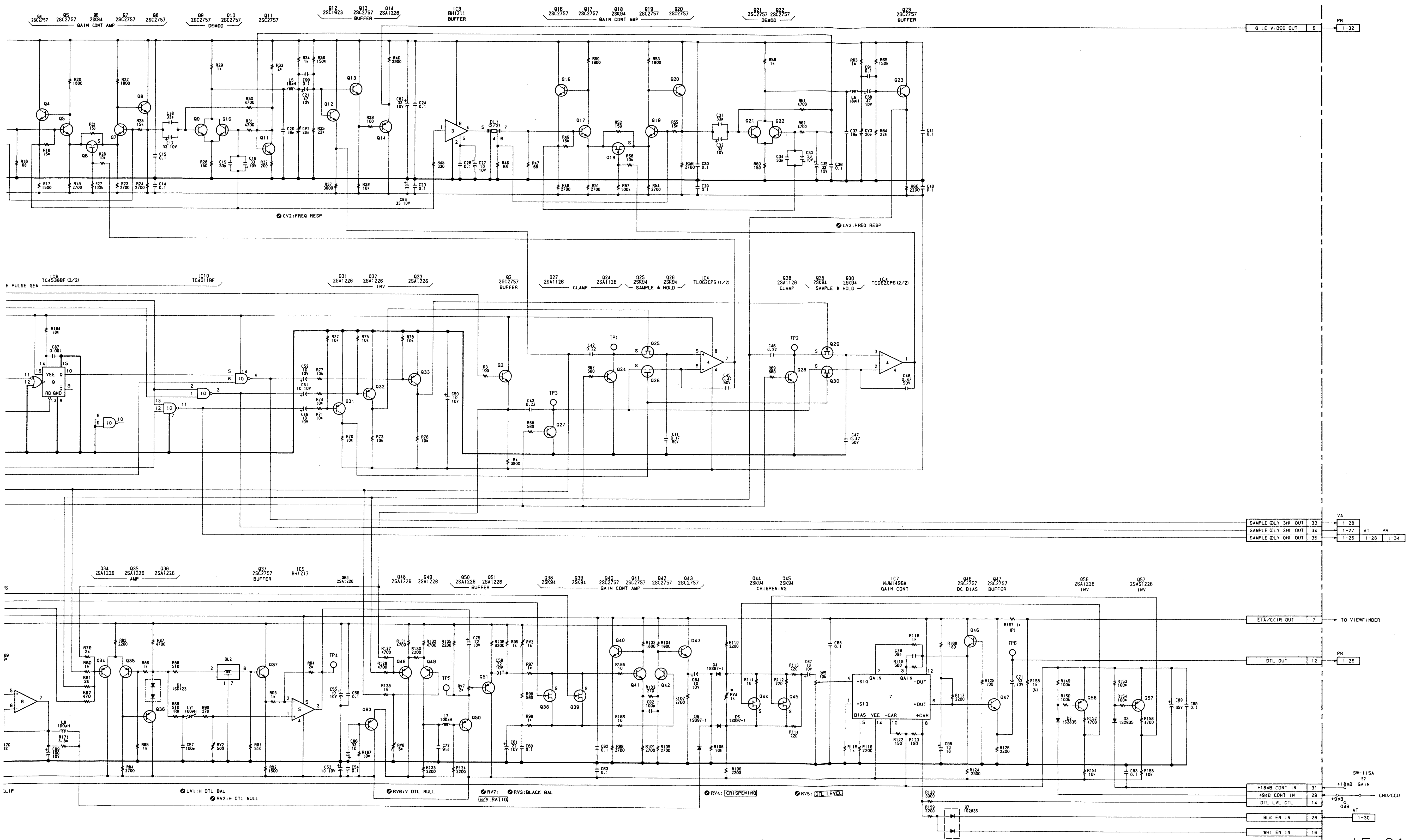
1-623-339-11 SOLDERING SIDE

CV1	K-2
CV2	K-5
D1	G-6
D2	D-4
D3	D-3
D4	A-3
D5	A-3
D6	D-5
D7	C-1
D8	Q-3
D9	C-3
DL1	M-1
DL2	E-6
IC1	Q-5
IC2	P-6
IC3	L-5
IC4	M-2
IC5	F-4
IC6	D-3
IC7	B-1
IC8	G-4
IC9	G-6
IC10	H-4
LV1	E-6
Q1	O-1
Q2	O-2
Q3	O-3
Q4	N-6
Q5	M-6
Q6	M-5
Q7	M-6
Q8	M-6
Q9	L-6
Q10	L-6
Q11	K-6
Q12	J-6
Q13	H-6
Q14	J-5
Q15	P-3
Q16	N-4
Q17	M-4
Q18	M-3
Q19	M-4
Q20	M-4
Q21	L-4
Q22	L-4
Q23	J-4
Q24	N-1
Q25	M-2
Q26	N-2
Q27	N-2
Q28	M-1
Q29	L-1
Q30	L-2
Q31	K-2
Q32	K-2
Q33	K-2
Q34	G-6
Q35	G-6
Q36	G-6
Q37	E-4
Q38	A-6
Q39	A-6
Q40	A-5
Q41	B-5
Q42	B-4
Q43	A-4
Q44	B-3
Q45	B-3
Q46	A-2
Q47	B-2
Q48	G-3
Q49	F-3
Q50	F-3
Q51	D-6
Q52	D-5
Q53	C-5
Q54	D-5
Q55	C-5
Q57	C-3
Q58	C-4
Q63	H-3
RV1	Q-4
RV2	F-6
RV4	C-6
RV5	B-6
RV6	J-3
RV7	E-6
RV8	E-6
RV9	D-4
S1	D-6

TP1	N-1
TP2	L-1
TP3	P-2
TP4	F-6
TP5	F-6
TP6	E-2

IE-21/21P BOARD


37 +6.8V IN
38 +6.8V IN
3 +5V IN
4 +5V IN
PA 2-5 22 28MHz IN 00
VA 1-8 32 G VA VIDEO IN
21 28MHz IN
39 GND
40 GND
1 -5V IN
2 -5V IN
SG 1-8 26 SAMPLE IN
VA 1-7 30 RVA VIDEO IN
SG 7-6 10 CLAMP IN
SG 7-5 9 PRE BLKG IN
Q1 2SA1226 BUFFER
Q3 2SA1226 CLAMP
Q15 2SC2757 BUFFER
IC1 NJM1496M MOD
IC2 BH1211 BUFFER
Q4 2SC2757 Q5 2SC2757 Q6 2SK94 Q7 2SC2757 Q8 2SC2757 GAIN CONT AMP
Q9 2SC2757 Q10 2SC2757 DEMOD
Q11 2SC2757
Q12 2SC1623 Q13 2SC2757 Q14 2SA1226 BUFFER
IC3 BH1211 BUFFER
Q16 2SC2757 Q17 2SC2757 Q18 2SK94 Q19 2SC2757 Q20 2SC2757 GAIN CONT AMP
Q21 2SC2757 Q22 2SC2757 DEMOD
CV1:FREQ RESP
RV1:MOD WHITE CLIP
CV2:FREQ RESP
CV3:FREQ RESP
IC8 TC4538BF (1/2)
IC8 TC4538BF (2/2)
IC9 TC4538BF (1/2)
IC9 TC4538BF (2/2)
SAMPLE PULSE GEN
IC10 TC4011BF
Q31 2SA1226 Q32 2SA1226 INV
Q33 2SA1226
Q2 2SC2757 BUFFER
Q27 2SA1126 CLAMP
Q24 2SA1126
Q25 2SK94 Q26 2SK94 SAMPLE & HOLD
IC4 TL062CPS (1/2)
Q28 2SA1126 CLAMP
Q29 2SK94 Q30 2SK94 SAMPLE & HOLD
IC4 TC062CPS (2/2)
TP1
TP2
TP3
Q52 2SA1226 CLAMP
Q53 2SC2757 Q54 2SC2757 LEVEL DEPEND
Q55 2SC2757 BUFFER
IC6 TL062CPS
Q34 2SA1226 Q35 2SA1226 Q36 2SA1226 AMP
Q37 2SC2757 BUFFER
IC5 BH1217
Q63 2SA1226
Q48 2SA1226 Q49 2SA1226
Q50 2SA1226 Q51 2SA1226 BUFFER
Q38 2SK94 Q39 2SK94 Q40 2SC2757 Q41 2SC2757 Q42 2SC2757 Q43 2SC2757 GAIN CONT AMP
Q44 2SK94 Q45 2SK94 CRISPENING
IC7 NJM1496M GAIN CONT
S1 DTL ON/OFF
OFF
ON
DL2
TP4
TP5
RV8: LEVEL DEPEND
RV9: BLACK CLIP
LV1:H DTL BAL
RV2:H DTL NULL
RV6:V DTL NULL
RV7: H/V RATIO
RV3:BLACK BAL
RV4: CRISPENING
RV5: DTL LEVEL


Q4 2SC2757
Q5 2SC2757
Q6 2SK94
Q7 2SC2757
Q8 2SC2757
GAIN CONT AMP
Q9 2SC2757
Q10 2SC2757
DEMOD
Q11 2SC2757
Q12 2SC1623
Q13 2SC2757
Q14 2SA1226
BUFFER
IC3 BH1211 BUFFER
Q16 2SC2757
Q17 2SC2757
Q18 2SK94
Q19 2SC2757
Q20 2SC2757
GAIN CONT AMP
Q21 2SC2757
Q22 2SC2757
DEMOD
Q23 2SC2757 BUFFER
G IE VIDEO OUT 6
PR 1-32
CV2:FREQ RESP
CV3:FREQ RESP
IC9 TC4538BF (2/2)
E PULSE GEN
IC10 TC4011BF
Q31 2SA1226
Q32 2SA1226
Q33 2SA1226
INV
Q2 2SC2757 BUFFER
Q27 2SA1126
Q24 2SA1126
CLAMP
Q25 2SK94
Q26 2SK94
SAMPLE & HOLD
IC4 TL062CPS (1/2)
Q28 2SA1126 CLAMP
Q29 2SK94
Q30 2SK94
SAMPLE & HOLD
IC4 TC062CPS (2/2)
TP1
TP2
TP3
SAMPLE (DLY 3H) OUT 33
SAMPLE (DLY 2H) OUT 34
SAMPLE (DLY 0H) OUT 35
VA
1-28
1-27
1-26
AT
1-28
PR
1-34
Q34 2SA1226
Q35 2SA1226
Q36 2SA1226
AMP
Q37 2SC2757 BUFFER
IC5 BH1217
Q63 2SA1226
Q48 2SA1226
Q49 2SA1226
Q50 2SA1226
Q51 2SA1226
BUFFER
Q38 2SK94
Q39 2SK94
Q40 2SC2757
Q41 2SC2757
Q42 2SC2757
Q43 2SC2757
GAIN CONT AMP
Q44 2SK94
Q45 2SK94
CRISPENING
IC7 NJM1496M GAIN CONT
Q46 2SC2757 DC BIAS
Q47 2SC2757 BUFFER
Q56 2SA1226 INV
Q57 2SAS1226 INV
TP4
TP5
TP6
DL2
EIA/CCIR OUT 7
TO VIEWFINDER
DTL OUT 12
PR
1-26
+18dB CONT IN 31
+9dB CONT IN 29
DTL LVL CTL 14
BLK EN IN 28
WHI EN IN 16
SW-115A
S7
+18dB GAIN
+9dB
0dB
CHU/CCU
AT
1-30
LV1:H DTL BAL
RV2:H DTL NULL
RV6:V DTL NULL
RV7: H/V RATIO
RV3:BLACK BAL
RV4: CRISPENING
RV5: DTL LEVEL
CLIP

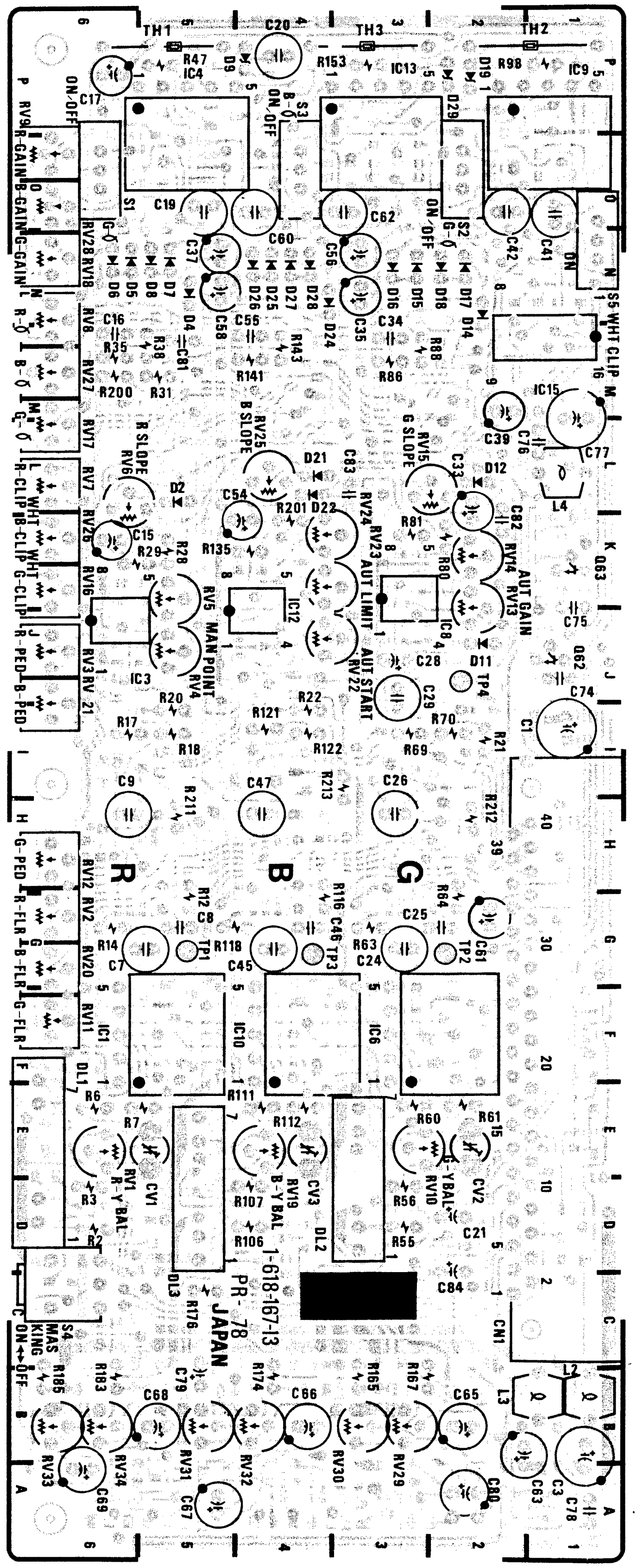
*NOTE

REF NO.	CHANGE INFORMATION.	SERIAL NO.
RV4	500 → 1K	10051~ (J) 10099~ (UC) 10001~ (EK)

IE-21/21P BOARD

1-623-339-11
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

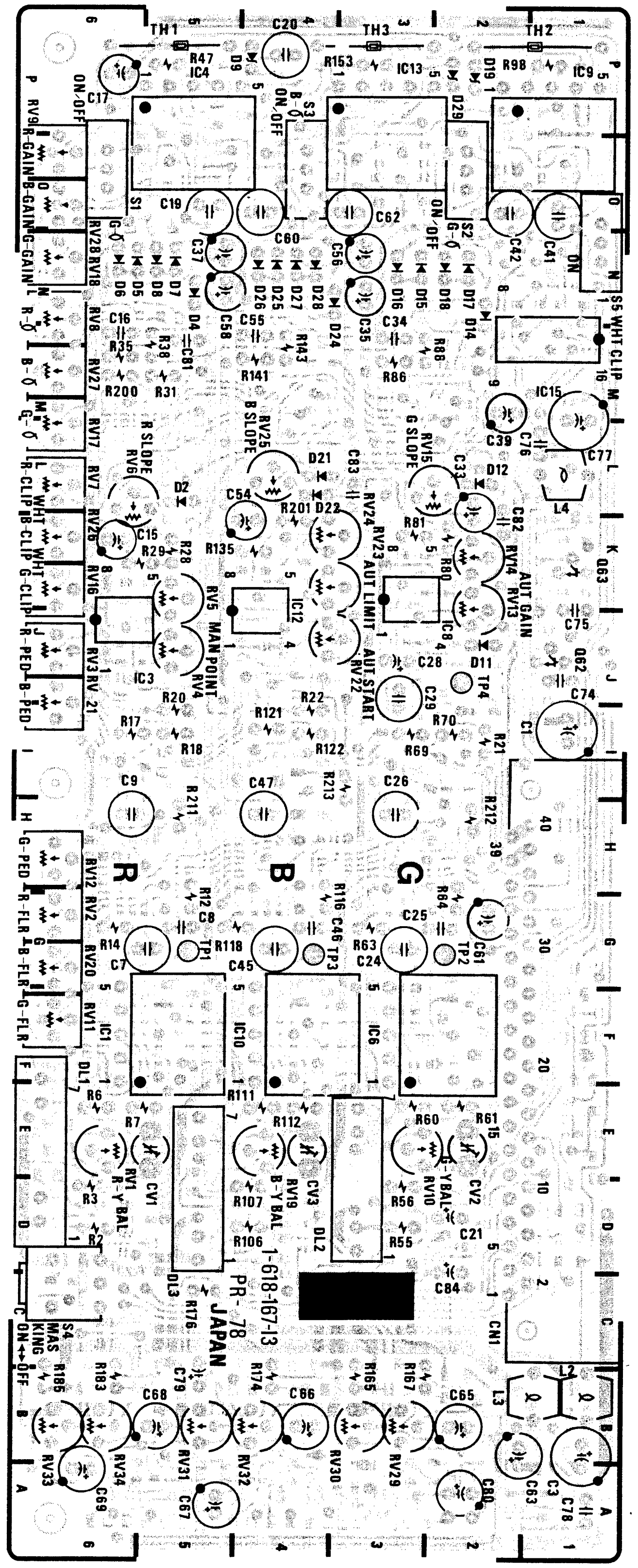
PR-78 BOARD


TH1
TH2
TH3
C20
R47
IC4
R153
IC13
R98
IC9
ON/OFF
C17
S1
C19
S2
S3
C60
C62
C41
C42
ON
S5 WHT CLIP
IC15
C77
L4
C39
R SLOPE
B SLOPE
G SLOPE
MAN POINT
AUT LIMIT
AUT START
AUT GAIN
IC3
IC12
IC8
C74
C1
C9
C47
C26
R
B
G
C7
C8
C25
C45
C24
IC1
IC10
IC6
DL1
DL2
DL3
CV1
CV2
CV3
R-Y BAL
B-Y BAL
Y BAL
C21
C84
CN1
S4 MASKING ON OFF
RV33
RV34
RV31
RV32
RV30
RV29
C68
C66
C65
C69
C67
C80
C83
C78
C3
L2
L3
R-GAIN
B-GAIN
G-GAIN
R-CLIP
B-CLIP
G-CLIP
R-PED
B-PED
G-PED
R-FLR
B-FLR
G-FLR
PR-78
1-618-167-13
JAPAN
A
B
C
D
E
F
G
H
J
K
L
M
N
O
P
1
2
3
4
5
6
10
20
30
39
40

1-618-167-13 COMPONENT SIDE

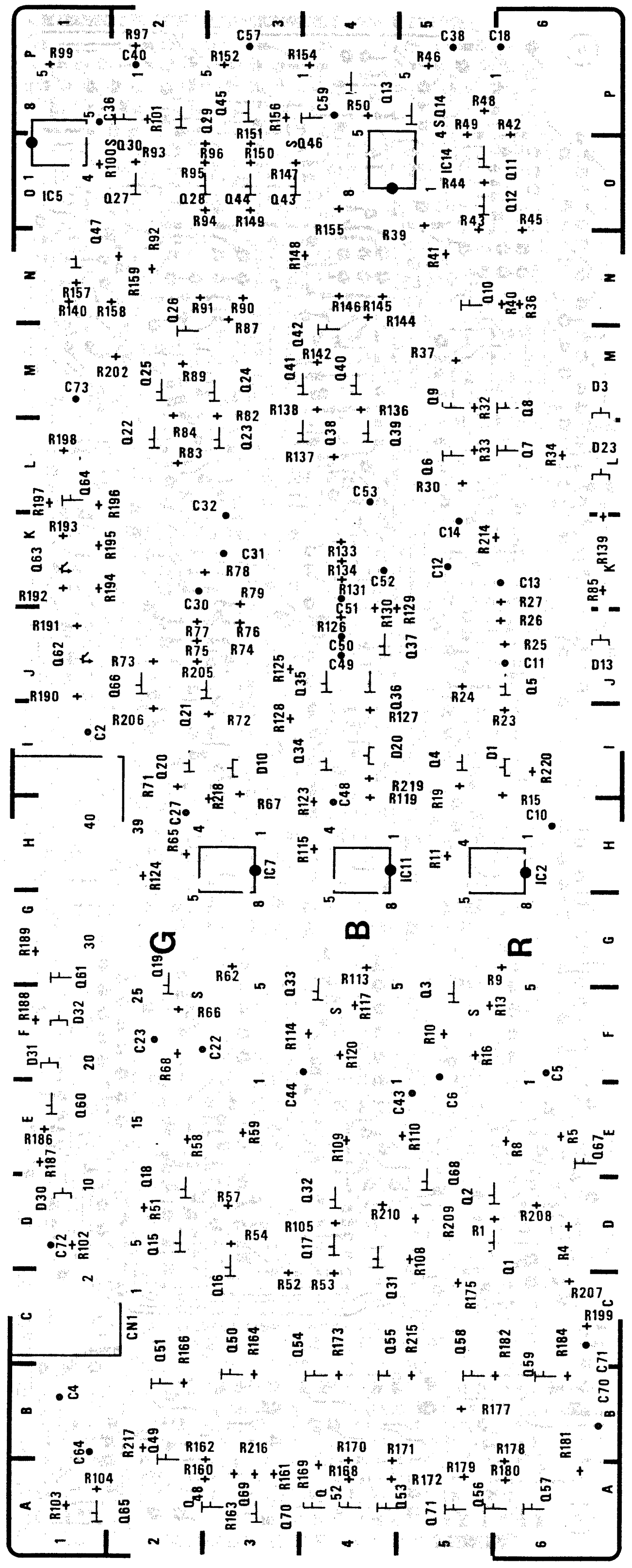
CN1	F · 1
CV1	E · 5
CV2	E · 2
CV3	E · 4
D1	I · 6
D2	L · 5
D3	M · 6
D4	N · 5
D5	N · 6
D6	N · 6
D7	N · 5
D8	N · 5
D9	P · 4
D10	I · 3
D11	J · 2
D12	L · 2
D13	J · 6
D14	N · 2
D15	N · 3
D16	N · 3
D17	N · 2
D18	N · 2
D19	P · 2
D20	I · 4
D21	L · 4
D22	L · 4
D23	L · 6
D24	N · 4
D25	N · 4
D26	N · 4
D27	N · 4
D28	N · 4
D29	P · 2
D30	D · 1
D31	F · 1
D32	F · 1
DL1	E · 6
DL2	E · 3
DL3	E · 5
IC1	F · 5
IC2	H · 6
IC3	J · 6
IC4	O · 5
IC5	O · 1
IC6	F · 2
IC7	H · 3
IC8	K · 3
IC9	O · 1
IC10	F · 4
IC11	H · 4
IC12	J · 4
IC13	O · 3
IC14	O · 4
IC15	M · 1
Q1	D · 6
Q2	D · 6
Q3	F · 5
Q4	I · 5
Q5	J · 6
Q6	L · 5
Q7	L · 6
Q8	M · 6
Q9	M · 5
Q10	N · 5
Q11	O · 5
Q12	O · 5
Q13	P · 4
Q14	P · 5
Q15	D · 2
Q16	D · 3
Q17	D · 4
Q18	D · 2
Q19	F · 2
Q20	I · 2
Q21	J · 3
Q22	L · 2
Q23	L · 3
Q24	M · 3
Q25	M · 2
Q26	M · 2
Q27	O · 2
Q28	O · 3
Q29	P · 2
Q30	P · 2
Q31	D · 4
Q32	D · 4
Q33	F · 4
Q34	I · 4
Q35	J · 4
Q36	J · 4
Q37	J · 4
Q38	L · 4
Q39	L · 4
Q40	M · 4
Q41	M · 4
Q42	M · 4
Q43	O · 3
Q44	O · 3
Q45	P · 3
Q46	P · 4
Q47	N · 1
Q48	A · 3
Q49	A · 2
Q50	B · 3
Q51	B · 2
Q52	A · 4
Q53	A · 4
Q54	B · 4
Q55	B · 4
Q56	A · 5
Q57	A · 6
Q58	B · 5
Q59	B · 6
Q60	E · 1
Q61	G · 1
Q62	J · 1
Q63	K · 1
Q64	L · 1
Q65	A · 1
Q66	J · 2
Q67	D · 6
Q68	D · 5
Q69	A · 3
Q70	A · 4
Q71	A · 5
RV1	E · 6
RV2	G · 6
RV3	J · 6
RV4	J · 5
RV5	K · 5
RV6	L · 6
RV7	L · 6
RV8	N · 6
RV9	O · 6
RV10	E · 3
RV11	F · 6
RV12	H · 6
RV13	J · 2
RV14	K · 2
RV15	L · 2
RV16	K · 6
RV17	L · 6
RV18	N · 6
RV19	E · 4
RV20	G · 6
RV21	I · 6
RV22	J · 4
RV23	K · 4
RV24	K · 4
RV25	L · 4
RV26	K · 6
RV27	M · 6
RV28	O · 6
RV29	B · 3
RV30	B · 3
RV31	B · 5
RV32	B · 4
RV33	B · 6
RV34	B · 6
S1	O · 6
S2	O · 2
S3	O · 4
S4	C · 6
S5	N · 1
TH1	P · 5
TH2	P · 1
TH3	P · 3
TP1	G · 5
TP2	G · 2
TP3	G · 4
TP4	J · 2

PR-78 BOARD



1-618-167-13 COMPONENT SIDE

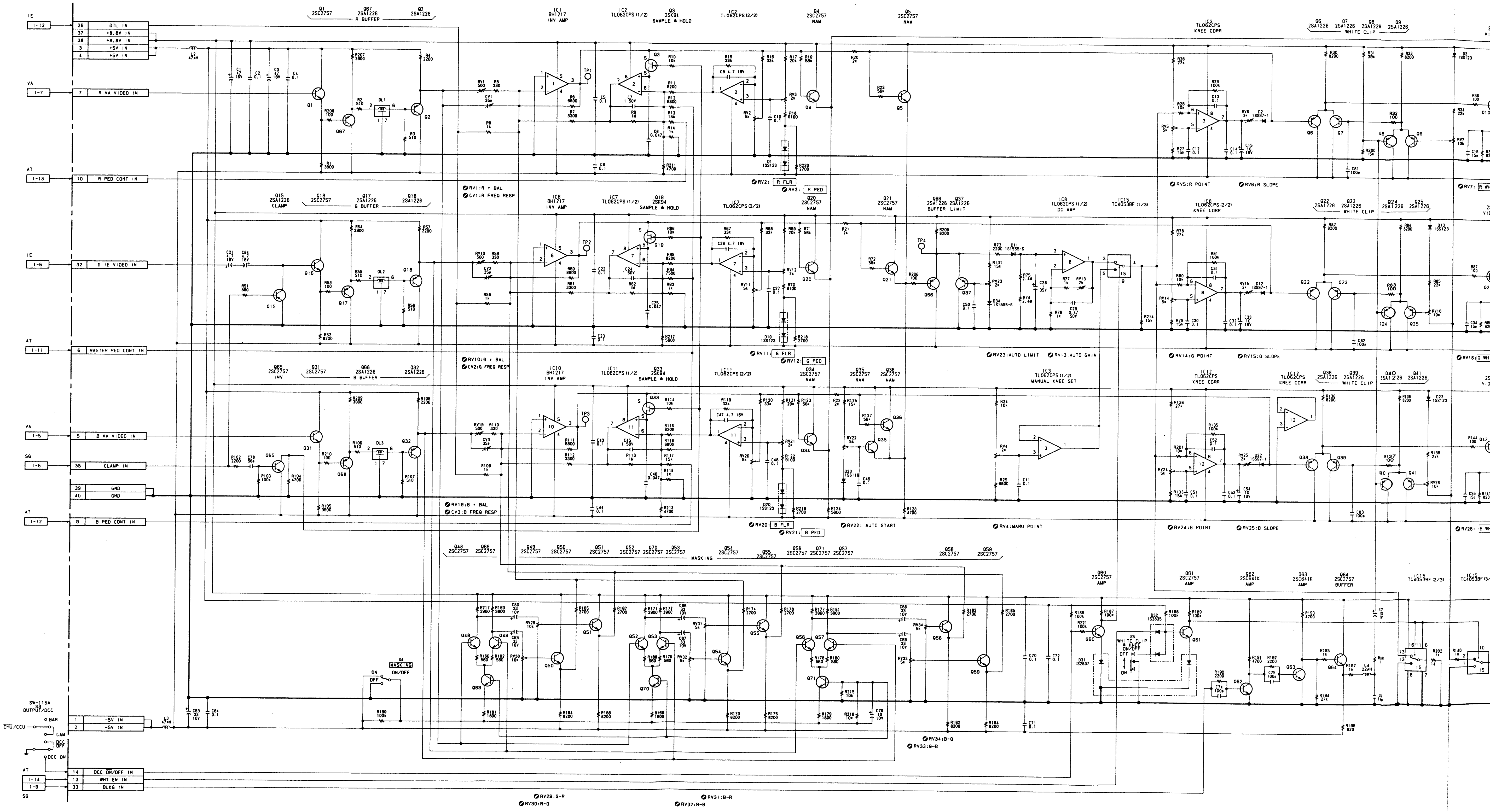
CN1	F · 1
CV1	E · 5
CV2	E · 2
CV3	E · 4
D1	I · 6
D2	L · 5
D3	M · 6
D4	N · 5
D5	N · 6
D6	N · 6
D7	N · 5
D8	N · 5
D9	P · 4
D10	I · 3
D11	J · 2
D12	L · 2
D13	J · 6
D14	N · 2
D15	N · 3
D16	N · 3
D17	N · 2
D18	N · 2
D19	P · 2
D20	I · 4
D21	L · 4
D22	L · 4
D23	L · 6
D24	N · 4
D25	N · 4
D26	N · 4
D27	N · 4
D28	N · 4
D29	P · 2
D30	D · 1
D31	F · 1
D32	F · 1
DL1	E · 6
DL2	E · 3
DL3	E · 5
IC1	F · 5
IC2	H · 6
IC3	J · 6
IC4	O · 5
IC5	O · 1
IC6	F · 2
IC7	H · 3
IC8	K · 3
IC9	O · 1
IC10	F · 4
IC11	H · 4
IC12	J · 4
IC13	O · 3
IC14	O · 4
IC15	M · 1
Q1	D · 6
Q2	D · 6
Q3	F · 5
Q4	I · 5
Q5	J · 6
Q6	L · 5
Q7	L · 6
Q8	M · 6
Q9	M · 5
Q10	N · 5
Q11	O · 5
Q12	O · 5
Q13	P · 4
Q14	P · 5
Q15	D · 2
Q16	D · 3
Q17	D · 4
Q18	D · 2
Q19	F · 2
Q20	I · 2
Q21	J · 3
Q22	L · 2
Q23	L · 3
Q24	M · 3
Q25	M · 2
Q26	M · 2
Q27	O · 2
Q28	O · 3
Q29	P · 2
Q30	P · 2
Q31	D · 4
Q32	D · 4
Q33	F · 4
Q34	I · 4
Q35	J · 4
Q36	J · 4
Q37	J · 4
Q38	L · 4
Q39	L · 4
Q40	M · 4
Q41	M · 4
Q42	M · 4
Q43	O · 3
Q44	O · 3
Q45	P · 3
Q46	P · 4
Q47	N · 1
Q48	A · 3
Q49	A · 2
Q50	B · 3
Q51	B · 2
Q52	A · 4
Q53	A · 4
Q54	B · 4
Q55	B · 4
Q56	A · 5
Q57	A · 6
Q58	B · 5
Q59	B · 6
Q60	E · 1
Q61	G · 1
Q62	J · 1
Q63	K · 1
Q64	L · 1
Q65	A · 1
Q66	J · 2
Q67	D · 6
Q68	D · 5
Q69	A · 3
Q70	A · 4
Q71	A · 5
RV1	E · 6
RV2	G · 6
RV3	J · 6
RV4	J · 5
RV5	K · 5
RV6	L · 6
RV7	L · 6
RV8	N · 6
RV9	O · 6
RV10	E · 3
RV11	F · 6
RV12	H · 6
RV13	J · 2
RV14	K · 2
RV15	L · 2
RV16	K · 6
RV17	L · 6
RV18	N · 6
RV19	E · 4
RV20	G · 6
RV21	I · 6
RV22	J · 4
RV23	K · 4
RV24	K · 4
RV25	L · 4
RV26	K · 6
RV27	M · 6
RV28	O · 6
RV29	B · 3
RV30	B · 3
RV31	B · 5
RV32	B · 4
RV33	B · 6
RV34	B · 6
S1	O · 6
S2	O · 2
S3	O · 4
S4	C · 6
S5	N · 1
TH1	P · 5
TH2	P · 1
TH3	P · 3
TP1	G · 5
TP2	G · 2
TP3	G · 4
TP4	J · 2

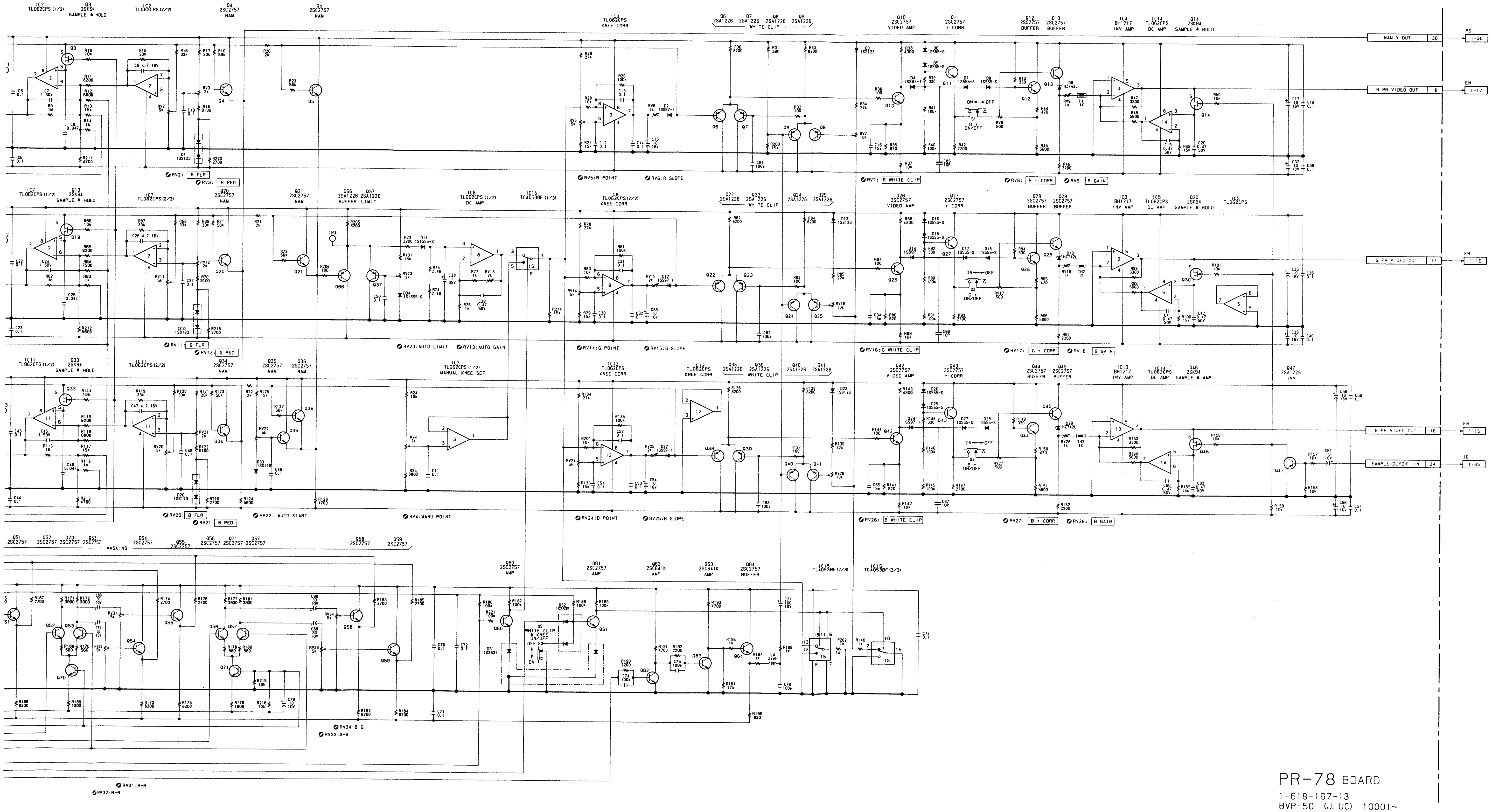


1-618-167-13 SOLDERING SIDE

CN1	F · 1
CV1	E · 5
CV2	E · 2
CV3	E · 4
D1	I · 6
D2	L · 5
D3	M · 6
D4	N · 5
D5	N · 6
D6	N · 6
D7	N · 5
D8	N · 5
D9	P · 4
D10	I · 3
D11	J · 2
D12	L · 2
D13	J · 6
D14	N · 2
D15	N · 3
D16	N · 3
D17	N · 2
D18	N · 2
D19	P · 2
D20	I · 4
D21	L · 4
D22	L · 4
D23	L · 6
D24	N · 4
D25	N · 4
D26	N · 4
D27	N · 4
D28	N · 4
D29	P · 2
D30	D · 1
D31	F · 1
D32	F · 1
DL1	E · 6
DL2	E · 3
DL3	E · 5
IC1	F · 5
IC2	H · 6
IC3	J · 6
IC4	O · 5
IC5	O · 1
IC6	F · 2
IC7	H · 3
IC8	K · 3
IC9	O · 1
IC10	F · 4
IC11	H · 4
IC12	J · 4
IC13	O · 3
IC14	O · 4
IC15	M · 1
Q1	D · 6
Q2	D · 6
Q3	F · 5
Q4	I · 5
Q5	J · 6
Q6	L · 5
Q7	L · 6
Q8	M · 6
Q9	M · 5
Q10	N · 5
Q11	O · 5
Q12	O · 5
Q13	P · 4
Q14	P · 5
Q15	D · 2
Q16	D · 3
Q17	D · 4
Q18	D · 2
Q19	F · 2
Q20	I · 2
Q21	J · 3
Q22	L · 2
Q23	L · 3
Q24	M · 3
Q25	M · 2
Q26	M · 2
Q27	O · 2
Q28	O · 3
Q29	P · 2
Q30	P · 2
Q31	D · 4
Q32	D · 4
Q33	F · 4
Q34	I · 4
Q35	J · 4
Q36	J · 4
Q37	J · 4
Q38	L · 4
Q39	L · 4
Q40	M · 4
Q41	M · 4
Q42	M · 4
Q43	O · 3
Q44	O · 3
Q45	P · 3
Q46	P · 4
Q47	N · 1
Q48	A · 3
Q49	A · 2
Q50	B · 3
Q51	B · 2
Q52	A · 4
Q53	A · 4
Q54	B · 4
Q55	B · 4
Q56	A · 5
Q57	A · 6
Q58	B · 5
Q59	B · 6
Q60	E · 1
Q61	G · 1
Q62	J · 1
Q63	K · 1
Q64	L · 1
Q65	A · 1
Q66	J · 2
Q67	D · 6
Q68	D · 5
Q69	A · 3
Q70	A · 4
Q71	A · 5
RV1	E · 6
RV2	G · 6
RV3	J · 6
RV4	J · 5
RV5	K · 5
RV6	L · 6
RV7	L · 6
RV8	N · 6
RV9	O · 6
RV10	E · 3
RV11	F · 6
RV12	H · 6
RV13	J · 2
RV14	K · 2
RV15	L · 2
RV16	K · 6
RV17	L · 6
RV18	N · 6
RV19	E · 4
RV20	G · 6
RV21	I · 6
RV22	J · 4
RV23	K · 4
RV24	K · 4
RV25	L · 4
RV26	K · 6
RV27	M · 6
RV28	O · 6
RV29	B · 3
RV30	B · 3
RV31	B · 5
RV32	B · 4
RV33	B · 6
RV34	B · 6
S1	O · 6
S2	O · 2
S3	O · 4
S4	C · 6
S5	N · 1
TH1	P · 5
TH2	P · 1
TH3	P · 3
TP1	G · 5
TP2	G · 2
TP3	G · 4
TP4	J · 2

PR-78 BOARD

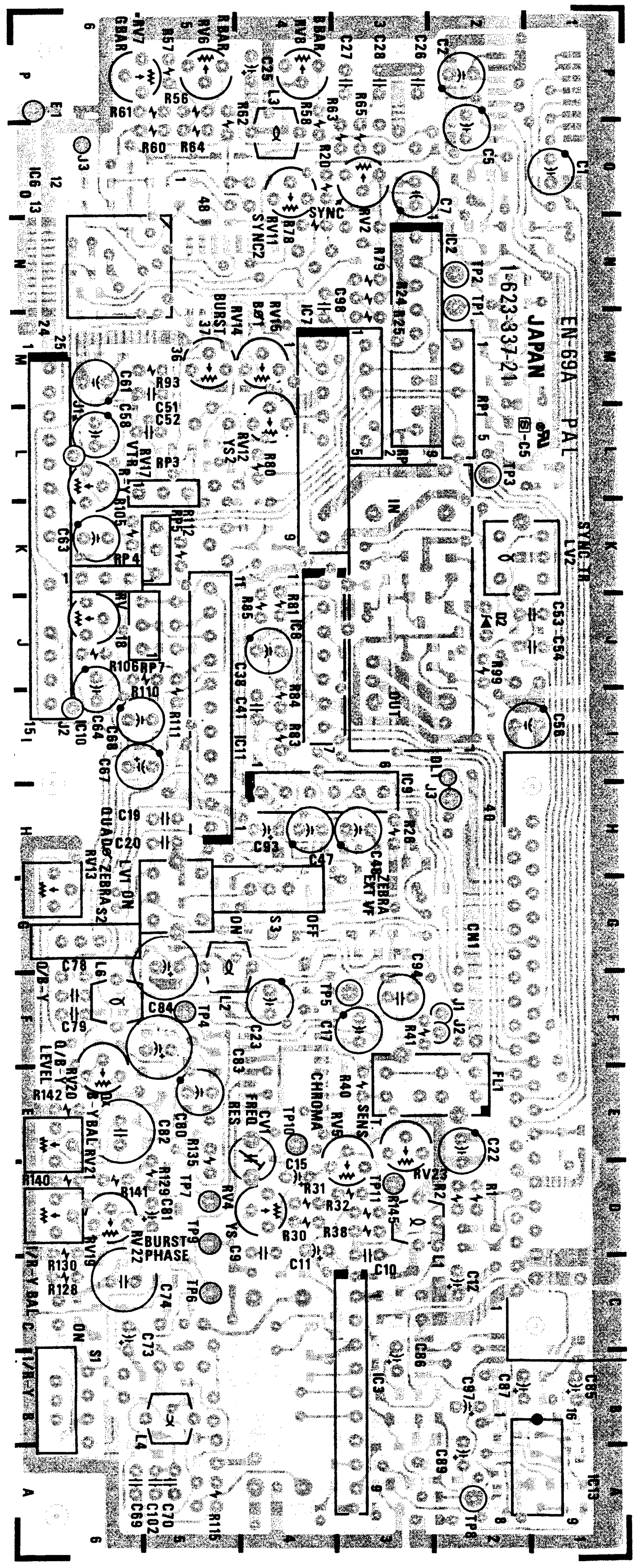

IE
1-12
26 DTL IN
37 +8.8V IN
38 +8.8V IN
3 +5V IN
4 +5V IN
VA
1-7
7 R VA VIDEO IN
AT
1-13
10 R PED CONT IN
IE
1-6
32 G IE VIDEO IN
AT
1-11
6 MASTER PED CONT IN
VA
1-5
5 B VA VIDEO IN
SG
1-6
35 CLAMP IN
39 GND
40 GND
AT
1-12
9 B PED CONT IN
1 -5V IN
2 -5V IN
SW-115A
S3
OUTPUT/DCC
BAR
CHU/CCU
CAM
DCC ON
AT
1-14
1-9
SG
14 DCC ON/OFF IN
13 WHT EN IN
33 BLKG IN
Q1 2SC2757
Q67 2SA1226
Q2 2SA1226
R BUFFER
IC1 BH1217 INV AMP
IC2 TL062CPS (1/2)
Q3 2SK94 SAMPLE & HOLD
IC2 TL062CPS (2/2)
Q4 2SC2757 NAM
Q5 2SC2757 NAM
IC3 TL062CPS KNEE CORR
Q6 2SA1226
Q7 2SA1226
Q8 2SA1226
Q9 2SA1226
WHITE CLIP
RV1:R + BAL
CV1:R FREQ RESP
RV2: R FLR
RV3: R PED
RV5:R POINT
RV6:R SLOPE
RV7: R WH
Q15 2SA1226 CLAMP
Q16 2SC2757
Q17 2SA1226
Q18 2SA1226
G BUFFER
IC8 BH1217 INV AMP
IC7 TL062CPS (1/2)
Q19 2SK94 SAMPLE & HOLD
IC7 TL062CPS (2/2)
Q20 2SC2757 NAM
Q21 2SC2757 NAM
Q66 2SA1226
Q37 2SA1226
BUFFER LIMIT
IC8 TL062CPS (1/2) DC AMP
IC15 TC4053BF (1/3)
IC8 TL062CPS (2/2) KNEE CORR
Q22 2SA1226
Q23 2SA1226
Q24 2SA1226
Q25 2SA1226
WHITE CLIP
RV10:G + BAL
CV2:G FREQ RESP
RV11: G FLR
RV12: G PED
RV23:AUTO LIMIT
RV13:AUTO GAIN
RV14:G POINT
RV15:G SLOPE
RV16: G WH
Q65 2SC2757 INV
Q31 2SC2757
Q68 2SA1226
Q32 2SA1226
B BUFFER
IC10 BH1217 INV AMP
IC11 TL062CPS (1/2)
Q33 2SK94 SAMPLE & HOLD
IC11 TL062CPS (2/2)
Q34 2SC2757 NAM
Q35 2SC2757 NAM
Q36 2SC2757 NAM
IC3 TL062CPS (1/2) MANUAL KNEE SET
IC12 TL062CPS KNEE CORR
IC12 TL062CPS KNEE CORR
Q38 2SA1226
Q39 2SA1226
Q40 2SA1226
Q41 2SA1226
WHITE CLIP
RV19:B + BAL
CV3:B FREQ RESP
RV20: B FLR
RV21: B PED
RV22: AUTO START
RV4:MANU POINT
RV24:B POINT
RV25:B SLOPE
RV26: B WH
TP1
TP2
TP3
TP4
DL1
DL2
DL3
Q48 2SC2757
Q69 2SC2757
Q49 2SC2757
Q50 2SC2757
Q51 2SC2757
Q52 2SC2757
Q70 2SC2757
Q53 2SC2757
Q54 2SC2757
Q55 2SC2757
Q56 2SC2757
Q71 2SC2757
Q57 2SC2757
Q58 2SC2757
Q59 2SC2757
MASKING
S4 MASKING ON/OFF
ON
OFF
Q60 2SC2757 AMP
Q61 2SC2757 AMP
Q62 2SC641K AMP
Q63 2SC641K AMP
Q64 2SC2757 BUFFER
IC15 TC4053BF (2/3)
IC15 TC4053BF (3/
S5 WHITE CLIP & KNEE ON/OFF
RV34:B-G
RV33:G-B
RV29:G-R
RV30:R-G
RV31:B-R
RV32:R-B


IC2 TL062CPS (1/2)
Q3 2SK94 SAMPLE & HOLD
IC2 TL062CPS (2/2)
Q4 2SC2757 NAM
Q5 2SC2757 NAM
IC3 TL062CPS KNEE CORR
Q6 2SA1226 Q7 2SA1226 Q8 2SA1226 Q9 2SA1226 WHITE CLIP
Q10 2SC2757 VIDEO AMP
Q11 2SC2757 γ CORR
Q12 2SC2757 Q13 2SC2757 BUFFER BUFFER
IC4 BH1217 INV AMP
IC14 TL062CPS DC AMP
Q14 2SK94 SAMPLE & HOLD
NAM Y OUT 36
PS 1-30
R PR VIDEO OUT 18
EN 1-17
RV2: R FLR
RV3: R PED
RV5: R POINT
RV6: R SLOPE
RV7: R WHITE CLIP
RV8: R γ CORR
RV9: R GAIN
IC7 TL062CPS (1/2)
Q19 2SK94 SAMPLE & HOLD
IC7 TL062CPS (2/2)
Q20 2SC2757 NAM
Q21 2SC2757 NAM
Q66 2SA1226 Q37 2SA1226 BUFFER LIMIT
IC8 TL062CPS (1/2) DC AMP
IC15 TC4053BF (1/3)
IC6 TL062CPS (2/2) KNEE CORR
Q22 2SA1226 Q23 2SA1226 WHITE CLIP
Q24 2SA1226 Q25 2SA1226
Q26 2SC2757 VIDEO AMP
Q27 2SC2757 γ CORR
Q28 2SC2757 Q29 2SC2757 BUFFER BUFFER
IC9 BH1217 INV AMP
IC5 TL062CPS DC AMP
Q30 2SK94 SAMPLE & HOLD
IC5 TL062CPS
TP4
G PR VIDEO OUT 17
EN 1-16
RV11: G FLR
RV12: G PED
RV23: AUTO LIMIT
RV13: AUTO GAIN
RV14: G POINT
RV15: G SLOPE
RV16: G WHITE CLIP
RV17: G γ CORR
RV18: G GAIN
IC11 TL062CPS (1/2)
Q33 2SK94 SAMPLE & HOLD
IC11 TL062CPS (2/2)
Q34 2SC2757 NAM
Q35 2SC2757 NAM
Q36 2SC2757 NAM
IC3 TL062CPS (1/2) MANUAL KNEE SET
IC12 TL062CPS KNEE CORR
IC12 TL062CPS KNEE CORR
Q38 2SA1226 Q39 2SA1226 WHITE CLIP
Q40 2SA1226 Q41 2SA1226
Q42 2SC2757 VIDEO AMP
Q43 2SC2757 γ CORR
Q44 2SC2757 Q45 2SC2757 BUFFER BUFFER
IC13 BH1217 INV AMP
IC14 TL062CPS DC AMP
Q46 2SK94 SAMPLE & AMP
Q47 2SA1226 INV
B PR VIDEO OUT 16
EN 1-15
SAMPLE (DLYD)H IN 34
IE 1-35
RV20: B FLR
RV21: B PED
RV22: AUTO START
RV4: MANU POINT
RV24: B POINT
RV25: B SLOPE
RV26: B WHITE CLIP
RV27: B γ CORR
RV28: B GAIN
Q51 2SC2757 Q52 2SC2757 Q70 2SC2757 Q53 2SC2757
Q54 2SC2757 Q55 2SC2757
Q56 2SC2757 Q71 2SC2757 Q57 2SC2757
Q58 2SC2757 Q59 2SC2757
MASKING
Q60 2SC2757 AMP
Q61 2SC2757 AMP
Q62 2SC641K AMP
Q63 2SC641K AMP
Q64 2SC2757 BUFFER
IC15 TC4053BF (2/3)
IC15 TC4053BF (3/3)
S5 WHITE CLIP & KNEE ON/OFF
RV31: B-R
RV32: R-B
RV33: G-B
RV34: B-G

PR-78 BOARD

1-618-167-13
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

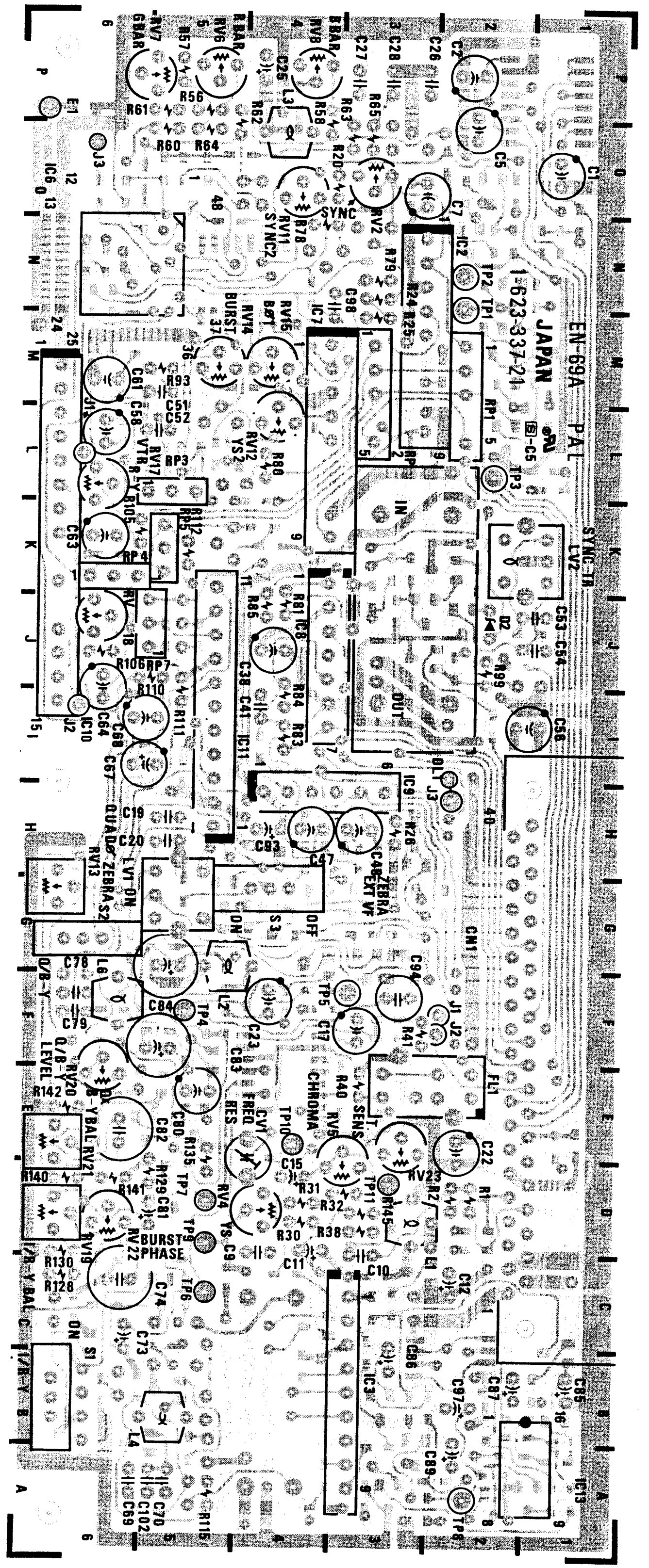
EN-69P BOARD



1-623-337-21 COMPONENT SIDE

CV1	E-4
CN1	G-2
D2	J-2
D3	A-1
D4	G-4
D5	G-5
DL1	J-3
E1	P-6
FL1	E-2
IC1	P-1
IC2	M-3
IC3	B-3
IC4	E-4
IC5	N-5
IC6	N-6
IC7	L-4
IC8	J-4
IC9	H-3
IC10	K-6
IC11	I-5
IC12	C-1
IC13	A-1
LV1	G-5
LV2	K-2
Q1	N-2
Q2	O-2
Q3	M-2
Q4	M-2
Q5	N-2
Q6	L-2
Q7	H-3
Q8	C-4
Q9	B-3
Q10	E-3
Q11	G-4
Q12	G-3
Q13	G-3
Q14	H-3
Q15	G-4
Q16	L-5
Q17	J-3
Q18	J-2
Q19	J-3
Q20	K-2
Q21	B-5
Q25	D-5
Q26	F-5
Q27	E-5
Q28	E-5
Q29	D-5
Q30	B-1
Q31	C-1
Q32	C-3
Q33	A-3
Q34	A-3
Q35	A-2
RP1	M-2
RP2	M-3
RP3	L-5
RP4	K-6
RP5	K-5
RP7	J-5
RV2	O-3
RV4	D-4
RV5	E-3
RV6	P-5
RV7	P-5
RV8	P-4
RV11	O-4
RV12	L-4
RV13	G-6
RV14	M-5
RV15	M-4
RV17	L-6
RV18	J-6
RV19	D-6
RV20	E-6
RV21	E-6
RV22	D-6
RV23	E-3
S1	B-6
S2	G-6
S3	G-4
TP1	N-2
TP2	N-2
TP3	L-2
TP4	F-5
TP5	F-3
TP6	C-5
TP7	D-5
TP8	A-2
TP9	D-5
TP10	E-4
TP11	D-3

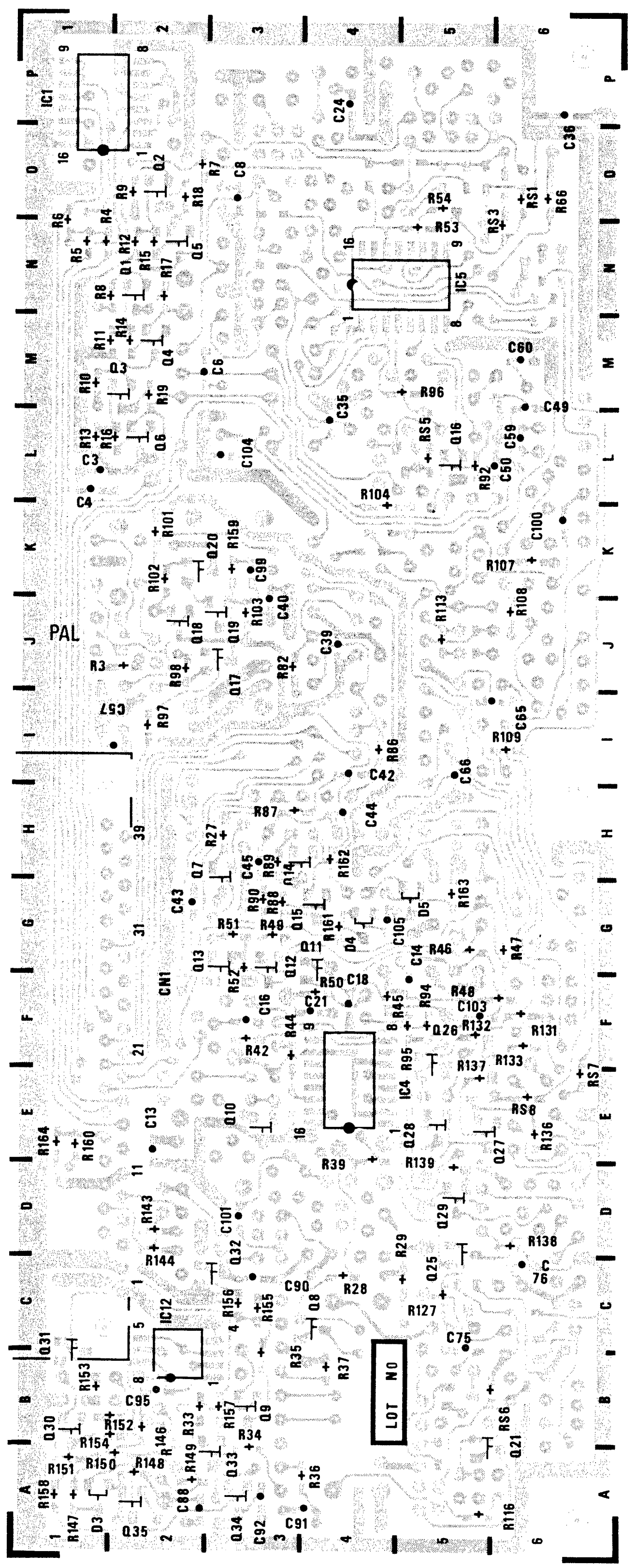
EN-69P BOARD



1-623-337-21 COMPONENT SIDE

CV1	E-4
CN1	G-2
D2	J-2
D3	A-1
D4	G-4
D5	G-5
DL1	J-3
E1	P-6
FL1	E-2
IC1	P-1
IC2	M-3
IC3	B-3
IC4	E-4
IC5	N-5
IC6	N-6
IC7	L-4
IC8	J-4
IC9	H-3
IC10	K-6
IC11	I-5
IC12	C-1
IC13	A-1
LV1	G-5
LV2	K-2
Q1	N-2
Q2	O-2
Q3	M-2
Q4	M-2
Q5	N-2
Q6	L-2
Q7	H-3
Q8	C-4
Q9	B-3
Q10	E-3
Q11	G-4
Q12	G-3
Q13	G-3
Q14	H-3
Q15	G-4
Q16	L-5
Q17	J-3
Q18	J-2
Q19	J-3
Q20	K-2
Q21	B-5
Q25	D-5
Q26	F-5
Q27	E-5
Q28	E-5
Q29	D-5
Q30	B-1
Q31	C-1
Q32	C-3
Q33	A-3
Q34	A-3
Q35	A-2
RP1	M-2
RP2	M-3
RP3	L-5
RP4	K-6
RP5	K-5
RP7	J-5
RV2	O-3
RV4	D-4
RV5	E-3
RV6	P-5
RV7	P-5
RV8	P-4
RV11	O-4
RV12	L-4
RV13	G-6
RV14	M-5
RV15	M-4
RV17	L-6
RV18	J-6
RV19	D-6
RV20	E-6
RV21	E-6
RV22	D-6
RV23	E-3

S1	B-6
S2	G-6
S3	G-4
TP1	N-2
TP2	N-2
TP3	L-2
TP4	F-5
TP5	F-3
TP6	C-5
TP7	D-5
TP8	A-2
TP9	D-5
TP10	E-4
TP11	D-3

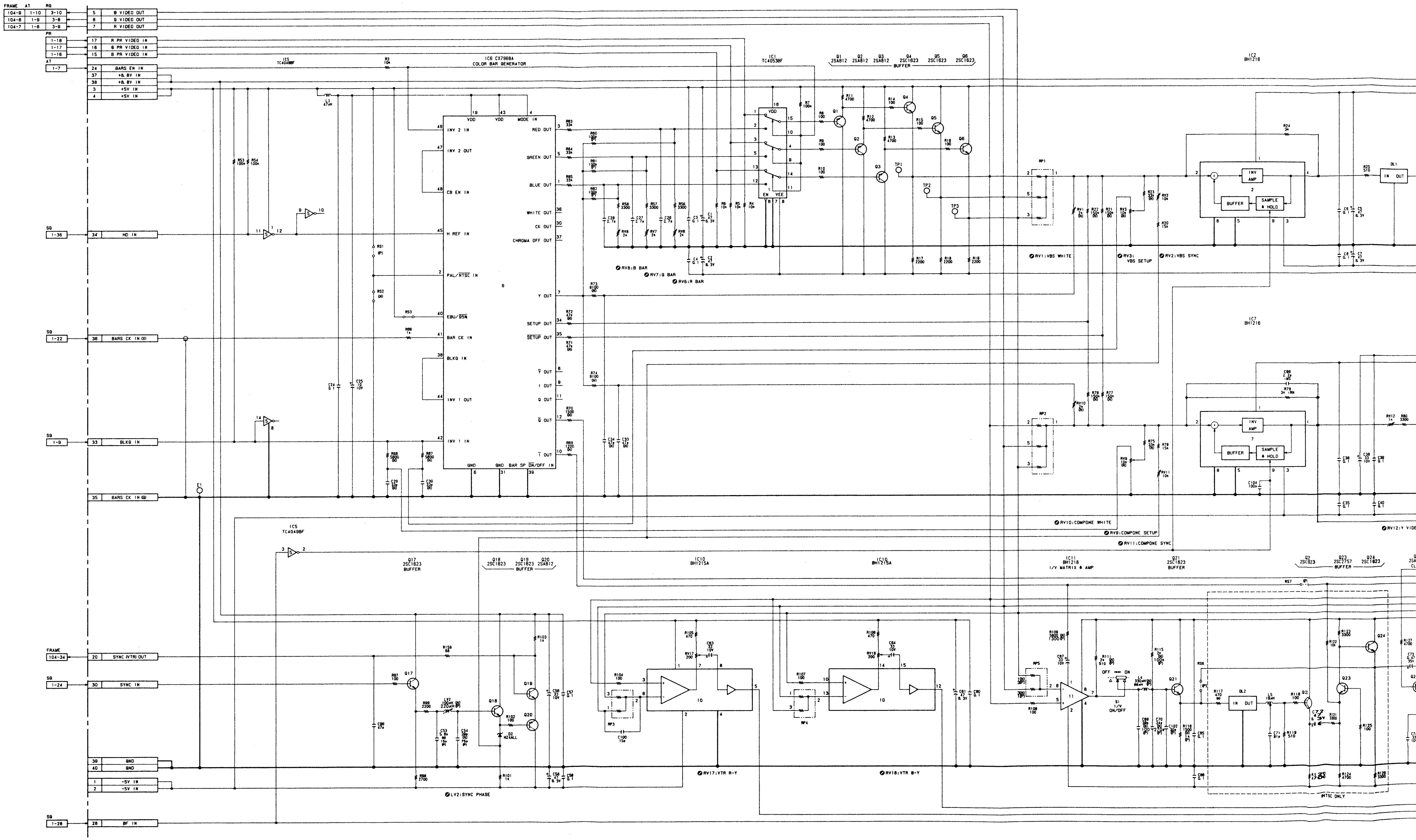


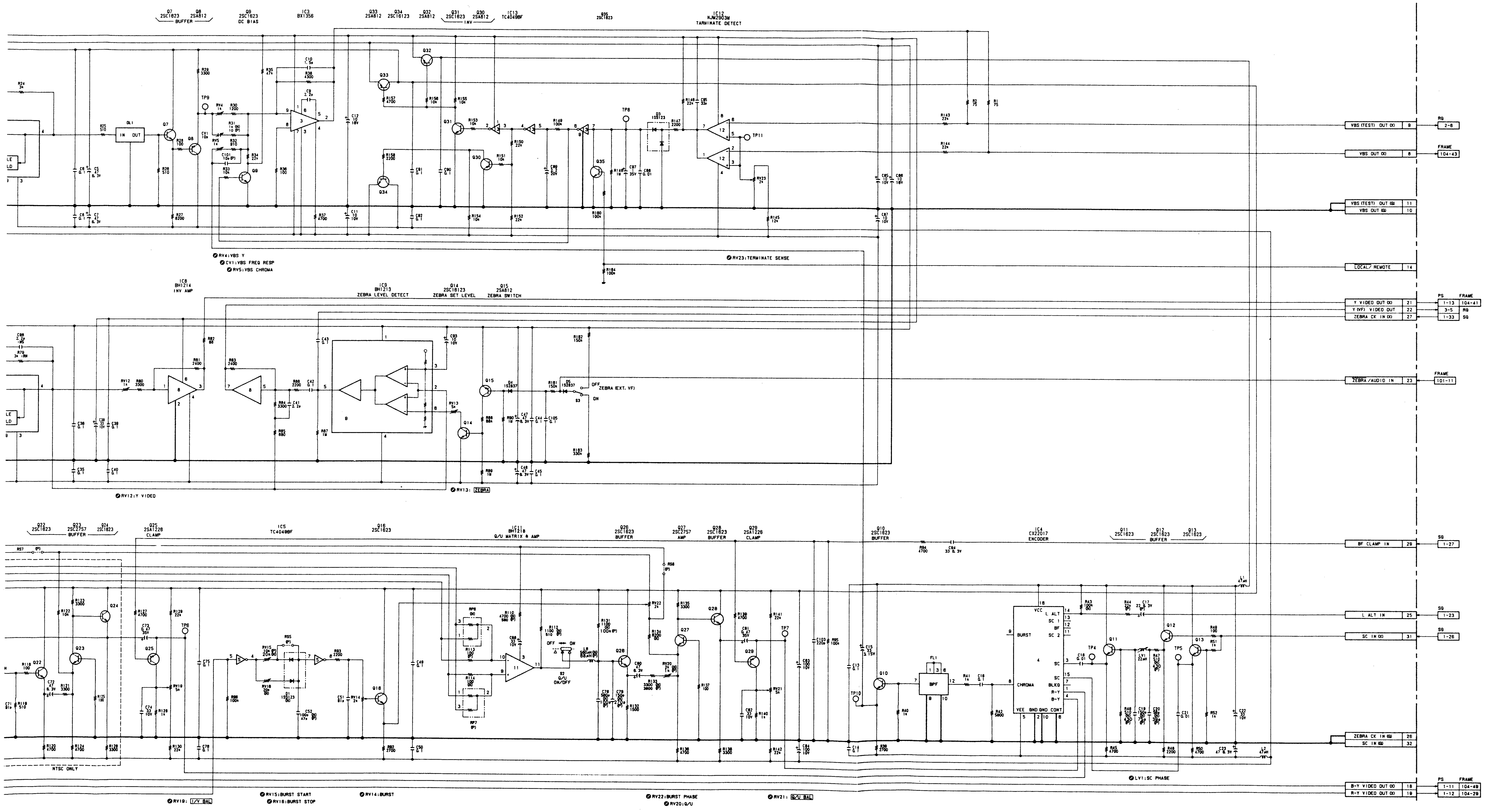
1-623-337-21 SOLDERING SIDE

CV1	E-4
CN1	G-2
D2	J-2
D3	A-1
D4	G-4
D5	G-5
DL1	J-3
E1	P-6
FL1	E-2
IC1	P-1
IC2	M-3
IC3	B-3
IC4	E-4
IC5	N-5
IC6	N-6
IC7	L-4
IC8	J-4
IC9	H-3
IC10	K-6
IC11	I-5
IC12	C-1
IC13	A-1
LV1	G-5
LV2	K-2
Q1	N-2
Q2	O-2
Q3	M-2
Q4	M-2
Q5	N-2
Q6	L-2
Q7	H-3
Q8	C-4
Q9	B-3
Q10	E-3
Q11	G-4
Q12	G-3
Q13	G-3
Q14	H-3
Q15	G-4
Q16	L-5
Q17	J-3
Q18	J-2
Q19	J-3
Q20	K-2
Q21	B-5
Q25	D-5
Q26	F-5
Q27	E-5
Q28	E-5
Q29	D-5
Q30	B-1
Q31	C-1
Q32	C-3
Q33	A-3
Q34	A-3
Q35	A-2
RP1	M-2
RP2	M-3
RP3	L-5
RP4	K-6
RP5	K-5
RP7	J-5
RV2	O-3
RV4	D-4
RV5	E-3
RV6	P-5
RV7	P-5
RV8	P-4
RV11	O-4
RV12	L-4
RV13	G-6
RV14	M-5
RV15	M-4
RV17	L-6
RV18	J-6
RV19	D-6
RV20	E-6
RV21	E-6
RV22	D-6
RV23	E-3

S1	B-6
S2	G-6
S3	G-4
TP1	N-2
TP2	N-2
TP3	L-2
TP4	F-5
TP5	F-3
TP6	C-5
TP7	D-5
TP8	A-2
TP9	D-5
TP10	E-4
TP11	D-3

EN-69/69P BOARD


FRAME AT RG
B VIDEO OUT
G VIDEO OUT
R VIDEO OUT
R PR VIDEO IN
G PR VIDEO IN
B PR VIDEO IN
BARS EN IN
+8.8V IN
+5V IN
HD IN
BARS CK IN
BLKG IN
SYNC (VTR) OUT
SYNC IN
GND
-5V IN
BF IN
IC5 TC4049BF
IC6 CX7968A COLOR BAR GENERATOR
IC1 TC4053BF
Q1 2SA812 Q2 2SA812 Q3 2SA812 Q4 2SC1623 Q5 2SC1623 Q6 2SC1623 BUFFER
IC2 BH1216
IC7 BH1216
INV AMP
BUFFER
SAMPLE & HOLD
IC10 BH1215A
IC11 BH1218 1/V MATRIX & AMP
Q17 2SC1823 BUFFER
Q18 2SC1823 Q19 2SC1823 Q20 2SA812 BUFFER
Q21 2SC1823 BUFFER
RV8:B BAR
RV7:G BAR
RV6:R BAR
RV1:VBS WHITE
RV3: VBS SETUP
RV2:VBS SYNC
RV10:COMPONE WHITE
RV9:COMPONE SETUP
RV11:COMPONE SYNC
RV17:VTR R-Y
RV18:VTR B-Y
LY2:SYNC PHASE
S1 1/V ON/OFF
NTSC ONLY


Q7 2SC1623 Q8 2SA812 BUFFER
Q9 2SC1623 DC BIAS
IC3 BX1356
Q33 2SA812
Q34 2SC16123
Q32 2SA812
Q31 2SC1623 Q30 2SA812 INV
IC13 TC4049BF
Q35 2SC1623
IC12 NJM2903M TARMINATE DETECT
RV4:VBS Y
CV1:VBS FREQ RESP
RV5:VBS CHROMA
RV23:TERMINATE SENSE
IC8 BH1214 INV AMP
IC9 BH1213 ZEBRA LEVEL DETECT
Q14 2SC18123 ZEBRA SET LEVEL
Q15 2SA812 ZEBRA SWITCH
ZEBRA (EXT. VF)
RV12:Y VIDEO
RV13: ZEBRA
Q22 2SC1623 Q23 2SC2757 Q24 2SC1623 BUFFER
Q25 2SA1226 CLAMP
IC5 TC4049BF
Q16 2SC1623
IC11 BH1218 Q/U MATRIX & AMP
Q26 2SC1623 BUFFER
Q27 2SC2757 AMP
Q28 2SC1623 BUFFER
Q29 2SA1226 CLAMP
Q10 2SC1623 BUFFER
IC4 CX22017 ENCODER
Q11 2SC1623 Q12 2SC1623 Q13 2SC1623 BUFFER
NTSC ONLY
RV19: I/V BAL
RV15:BURST START
RV16:BURST STOP
RV14:BURST
RV22:BURST PHASE
RV20:Q/U
RV21: Q/U BAL
LV1:SC PHASE
VBS (TEST) OUT (N) 9 RG 2-6
VBS OUT (N) 8 FRAME 104-43
VBS (TEST) OUT (P) 11
VBS OUT (P) 10
LOCAL/ REMOTE 14
Y VIDEO OUT (N) 21 PS 1-13 FRAME 104-41
Y (VF) VIDEO OUT 22 3-5 RG
ZEBRA CK IN (N) 27 1-33 SG
ZEBRA/AUDIO IN 23 FRAME 101-11
BF CLAMP IN 29 SG 1-27
L ALT IN 25 SG 1-23
SC IN (N) 31 SG 1-26
ZEBRA CK IN (P) 26
SC IN (P) 32
B-Y VIDEO OUT (N) 18 PS 1-11 FRAME 104-49
R-Y VIDEO OUT (N) 19 1-12 104-29

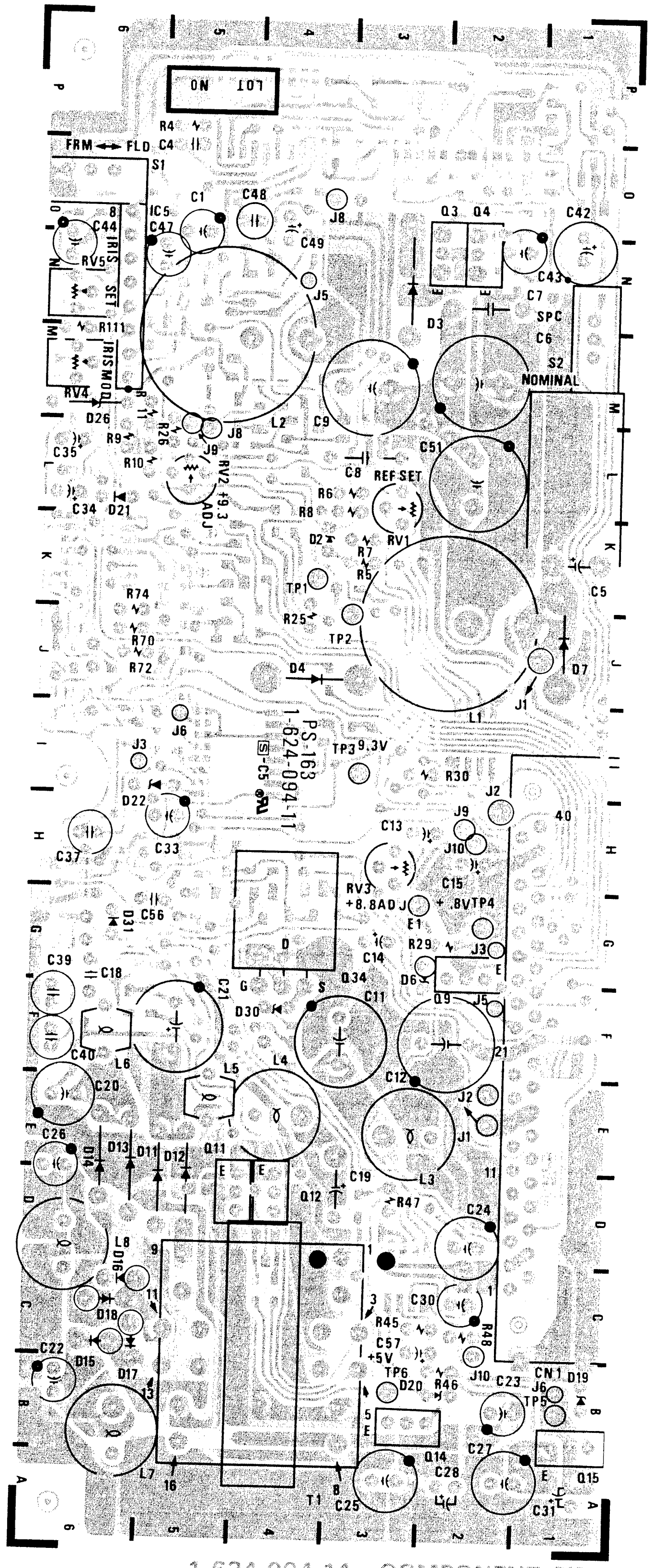
CHANGE INFORMATION

C77 (N) CHOISE { 10P 20P 33P

EN-69/69P BOARD

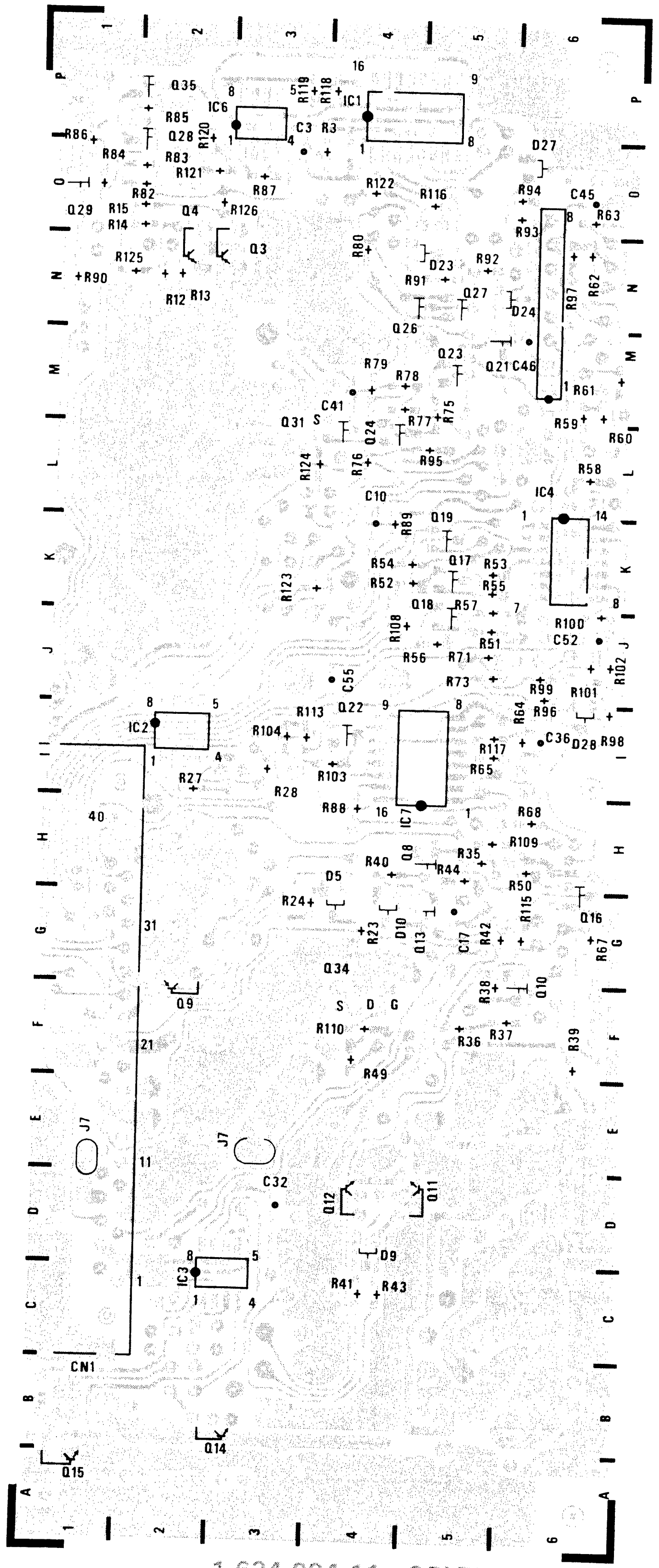
1-623-337-11 (J, UC)
1-623-337-21 (EK)
BVP-50 (J, UC) 10001 ~
BVP-50P (EK) 10001 ~

PS-163 BOARD


LOT NO
FRM ↔ FLD
IRIS SET
IRIS MOD
RV2 +9.3 ADJ
REF SET
NOMINAL
SPC
S2
TP1
TP2
TP3 9.3V
RV3 +8.8ADJ
TP4 .8V
+5V
TP6
TP5
CN1
PS-163
1-624-094-11
T1
40
21
11
1
16
9
8
3
5

1-624-094-11 COMPONENT SIDE

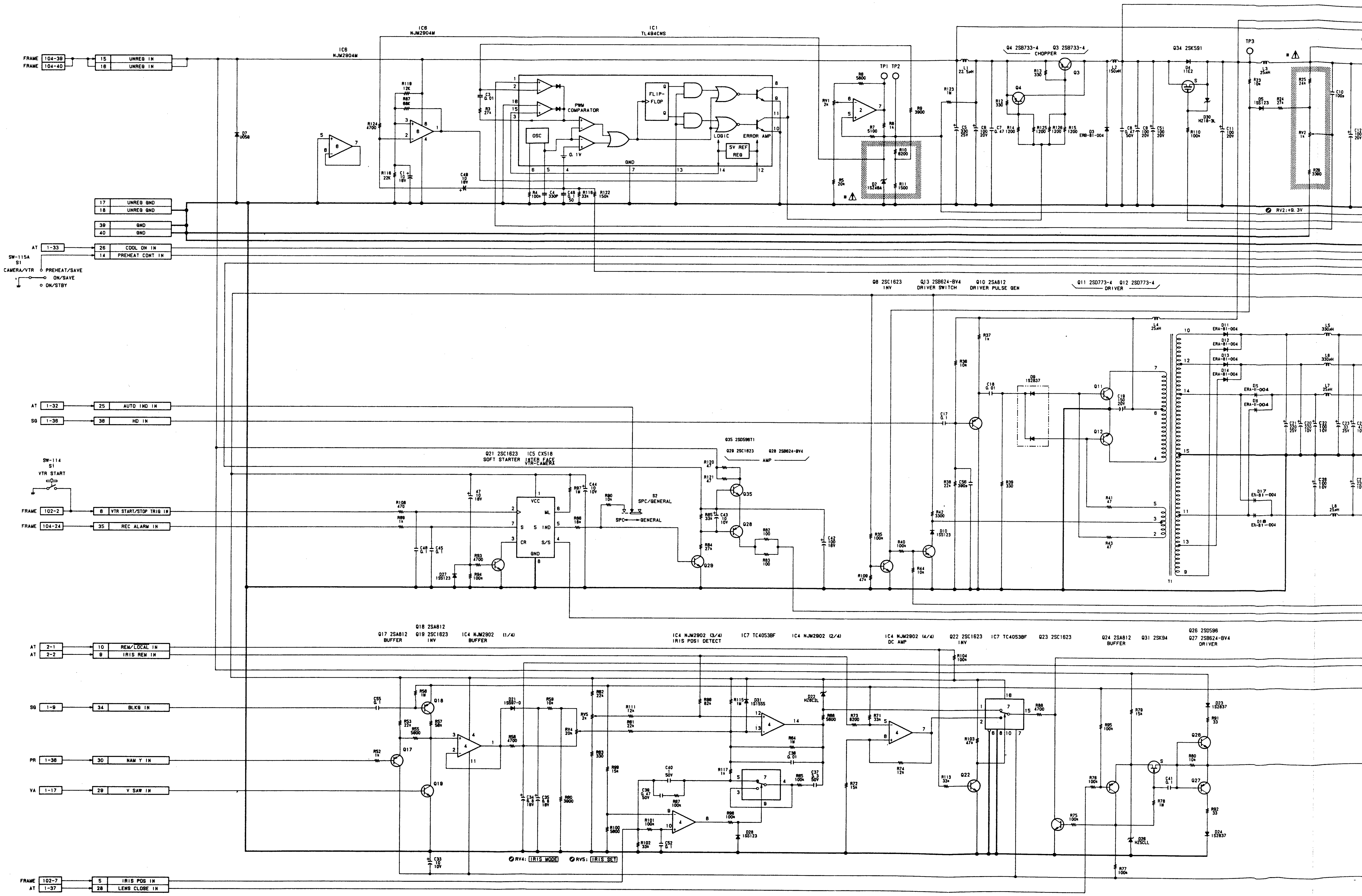
CN1	C-1
D2	K-4
D3	N-3
D4	J-4
D5	G-4
D6	G-3
D7	J-1
D9	D-4
D10	G-4
D11	D-5
D12	D-5
D13	D-6
D14	D-6
D15	C-6
D16	C-6
D17	C-6
D18	C-6
D19	B-1
D20	B-2
D21	L-6
D22	L-5
D23	N-5
D26	M-6
D27	O-6
D28	I-6
D30	F-4
D31	G-6
E1	G-3
IC1	D-4
IC2	I-2
IC3	C-3
IC4	K-6
IC5	N-5
IC6	P-3
IC7	I-5
L1	L-2
L2	M-4
Q3	N-2
Q4	N-2
Q8	H-5
Q9	F-2
Q10	F-6
Q11	D-4
Q12	D-4
Q13	G-5
Q14	B-3
Q15	A-1
Q16	H-6
Q17	K-5
Q18	J-5
Q19	K-5
Q21	M-5
Q22	I-4
Q23	M-5
Q24	L-4
Q26	N-4
Q27	N-5
Q28	O-2
Q29	O-1
Q31	L-4
Q34	G-4
Q35	P-2
RV1	L-3
RV2	L-5
RV3	H-3
RV4	M-6
RV5	N-6
S1	O-6
S2	L-1
T1	C-4
TP1	K-4
TP2	J-3
TP3	I-3
TP4	G-2
TP5	B-1
TP6	B-3

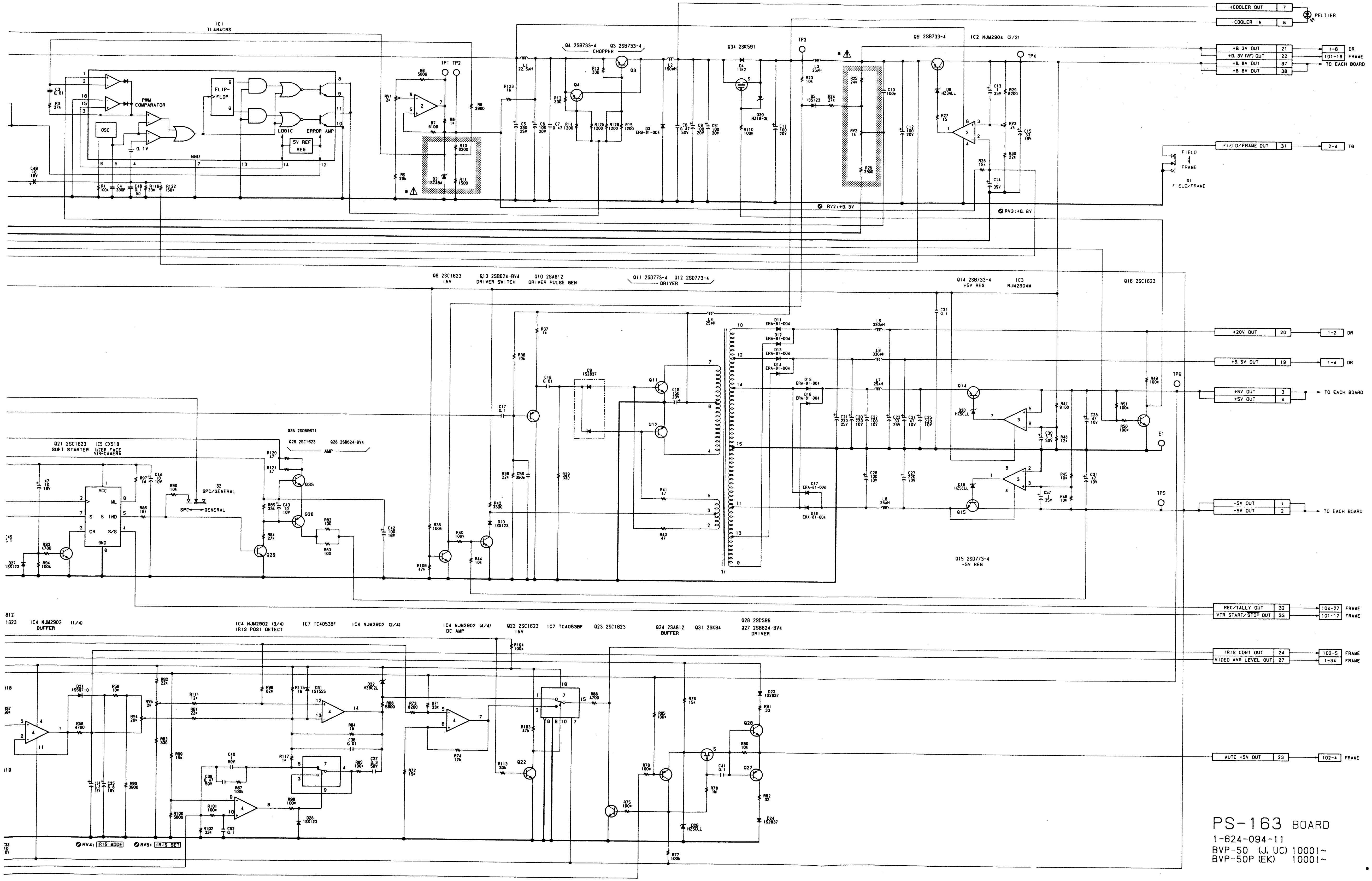

IC1
IC2
IC3
IC4
IC6
IC7
CN1
40
31
21
11
1
J7
Q9
Q14
Q15

1-624-094-11 SOLDERING SIDE

CN1	C-1
D2	K-4
D3	N-3
D4	J-4
D5	G-4
D6	G-3
D7	J-1
D9	D-4
D10	G-4
D11	D-5
D12	D-5
D13	D-6
D14	D-6
D15	C-6
D16	C-6
D17	C-6
D18	C-6
D19	B-1
D20	B-2
D21	L-6
D22	L-5
D23	N-5
D26	M-6
D27	O-6
D28	I-6
D30	F-4
D31	G-6
E1	G-3
IC1	D-4
IC2	I-2
IC3	C-3
IC4	K-6
IC5	N-5
IC6	P-3
IC7	I-5
L1	L-2
L2	M-4
Q3	N-2
Q4	N-2
Q8	H-5
Q9	F-2
Q10	F-6
Q11	D-4
Q12	D-4
Q13	G-5
Q14	B-3
Q15	A-1
Q16	H-6
Q17	K-5
Q18	J-5
Q19	K-5
Q21	M-5
Q22	I-4
Q23	M-5
Q24	L-4
Q26	N-4
Q27	N-5
Q28	O-2
Q29	O-1
Q31	L-4
Q34	G-4
Q35	P-2
RV1	L-3
RV2	L-5
RV3	H-3
RV4	M-6
RV5	N-6
S1	O-6
S2	L-1
T1	C-4
TP1	K-4
TP2	J-3
TP3	I-3
TP4	G-2
TP5	B-1
TP6	B-3

PS-163 BOARD

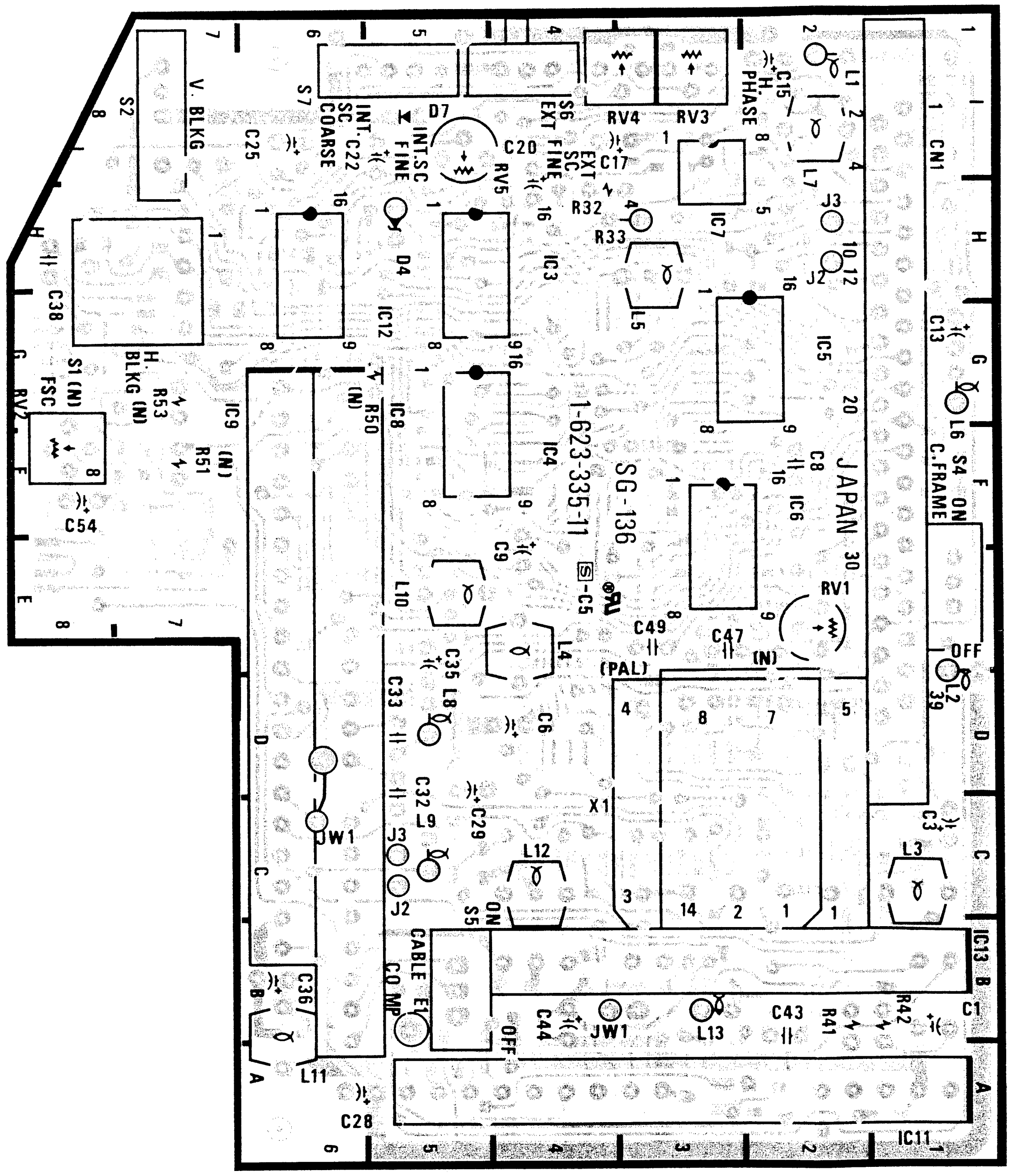

FRAME 104-39
FRAME 104-40
15 UNREG IN
16 UNREG IN
17 UNREG GND
18 UNREG GND
39 GND
40 GND
AT 1-33
26 COOL ON IN
14 PREHEAT CONT IN
SW-115A S1 CAMERA/VTR
PREHEAT/SAVE
ON/SAVE
ON/STBY
AT 1-32
25 AUTO IND IN
SG 1-36
36 HD IN
SW-114 S1 VTR START
FRAME 102-2
6 VTR START/STOP TRIG IN
FRAME 104-24
35 REC ALARM IN
AT 2-1
10 REM/LOCAL IN
AT 2-2
9 IRIS REM IN
SG 1-9
34 BLKG IN
PR 1-38
30 NAM Y IN
VA 1-17
29 V SAW IN
FRAME 102-7
5 IRIS POS IN
AT 1-37
28 LENS CLOSE IN
IC6 NJM2904M
IC1 TL494CNS
PWM COMPARATOR
FLIP-FLOP
OSC
LOGIC
ERROR AMP
5V REF REG
TP1 TP2
TP3
Q4 2SB733-4 Q3 2SB733-4 CHOPPER
Q34 2SK591
RV2:+9.3V
Q8 2SC1623 INV
Q13 2SB624-BV4 DRIVER SWITCH
Q10 2SA812 DRIVER PULSE GEN
Q11 2SD773-4 Q12 2SD773-4 DRIVER
T1
Q21 2SC1623 SOFT STARTER
IC5 CX518 INTER FACE VTR-CAMERA
Q35 2SD596T1
Q29 2SC1623 Q28 2SB624-BV4 AMP
S2 SPC/GENERAL
Q17 2SA812 BUFFER
Q18 2SA812 Q19 2SC1623 INV
IC4 NJM2902 (1/4) BUFFER
IC4 NJM2902 (3/4) IRIS POSI DETECT
IC7 TC4053BF
IC4 NJM2902 (2/4)
IC4 NJM2902 (4/4) DC AMP
Q22 2SC1623 INV
IC7 TC4053BF
Q23 2SC1623
Q24 2SA812 BUFFER
Q31 2SK94
Q26 2SD596 Q27 2SB624-BV4 DRIVER
RV4: IRIS MODE
RV5: IRIS SET


IC1 TL494CNS
PWM COMPARATOR
FLIP-FLOP
OSC
LOGIC
ERROR AMP
5V REF REG
GND
TP1
TP2
Q4 2SB733-4
Q3 2SB733-4
CHOPPER
Q34 2SK581
TP3
Q9 2SB733-4
IC2 NJM2904 (2/2)
TP4
RV2:+9.3V
RV3:+8.8V
+COOLER OUT
7
-COOLER IN
8
PELTIER
+9.3V OUT
21
+9.3V (VF) OUT
22
+8.8V OUT
37
+8.8V OUT
38
1-6
DR
101-18
FRAME
TO EACH BOARD
FIELD/FRAME OUT
31
2-4
TG
FIELD
FRAME
S1
FIELD/FRAME
Q8 2SC1623
INV
Q13 2SB624-BV4
DRIVER SWITCH
Q10 2SA812
DRIVER PULSE GEN
Q11 2SD773-4
Q12 2SD773-4
DRIVER
Q14 2SB733-4
+5V REG
IC3
NJM2904M
Q16 2SC1623
+20V OUT
20
1-2
DR
+6.5V OUT
19
1-4
DR
TP6
+5V OUT
3
+5V OUT
4
TO EACH BOARD
E1
TP5
-5V OUT
1
-5V OUT
2
TO EACH BOARD
Q15 2SD773-4
-5V REG
T1
Q21 2SC1623
SOFT STARTER
IC5 CX518
INTER FACE
VTR-CAMERA
Q35 2SD596T1
Q29 2SC1623
Q28 2SB624-BV4
AMP
S2
SPC/GENERAL
SPC
GENERAL
REC/TALLY OUT
32
VTR START/STOP OUT
33
104-27
FRAME
101-17
FRAME
IC4 NJM2902 (1/4)
BUFFER
IC4 NJM2902 (3/4)
IRIS POSI DETECT
IC7 TC4053BF
IC4 NJM2902 (2/4)
IC4 NJM2902 (4/4)
DC AMP
Q22 2SC1623
INV
IC7 TC4053BF
Q23 2SC1623
Q24 2SA812
BUFFER
Q31 2SK94
Q26 2SD596
Q27 2SB624-BV4
DRIVER
IRIS CONT OUT
24
VIDEO AVR LEVEL OUT
27
102-5
FRAME
1-34
FRAME
AUTO +5V OUT
23
102-4
FRAME
RV4: IRIS MODE
RV5: IRIS SET

PS-163 BOARD
1-624-094-11
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

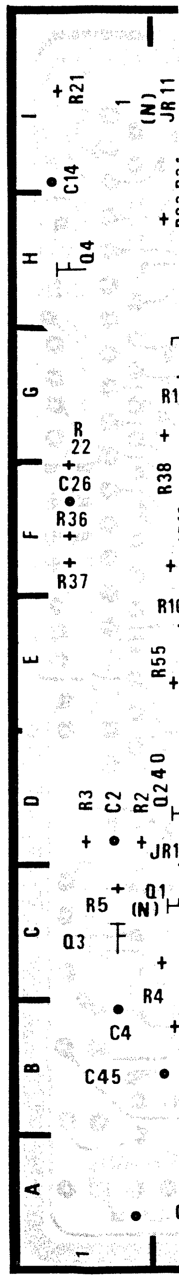
* These components are specified as Safety Related Component for UC only.
これらの安全重要部品の指定はUC仕向けにのみ適用されます。

SG-136/136P BOARD

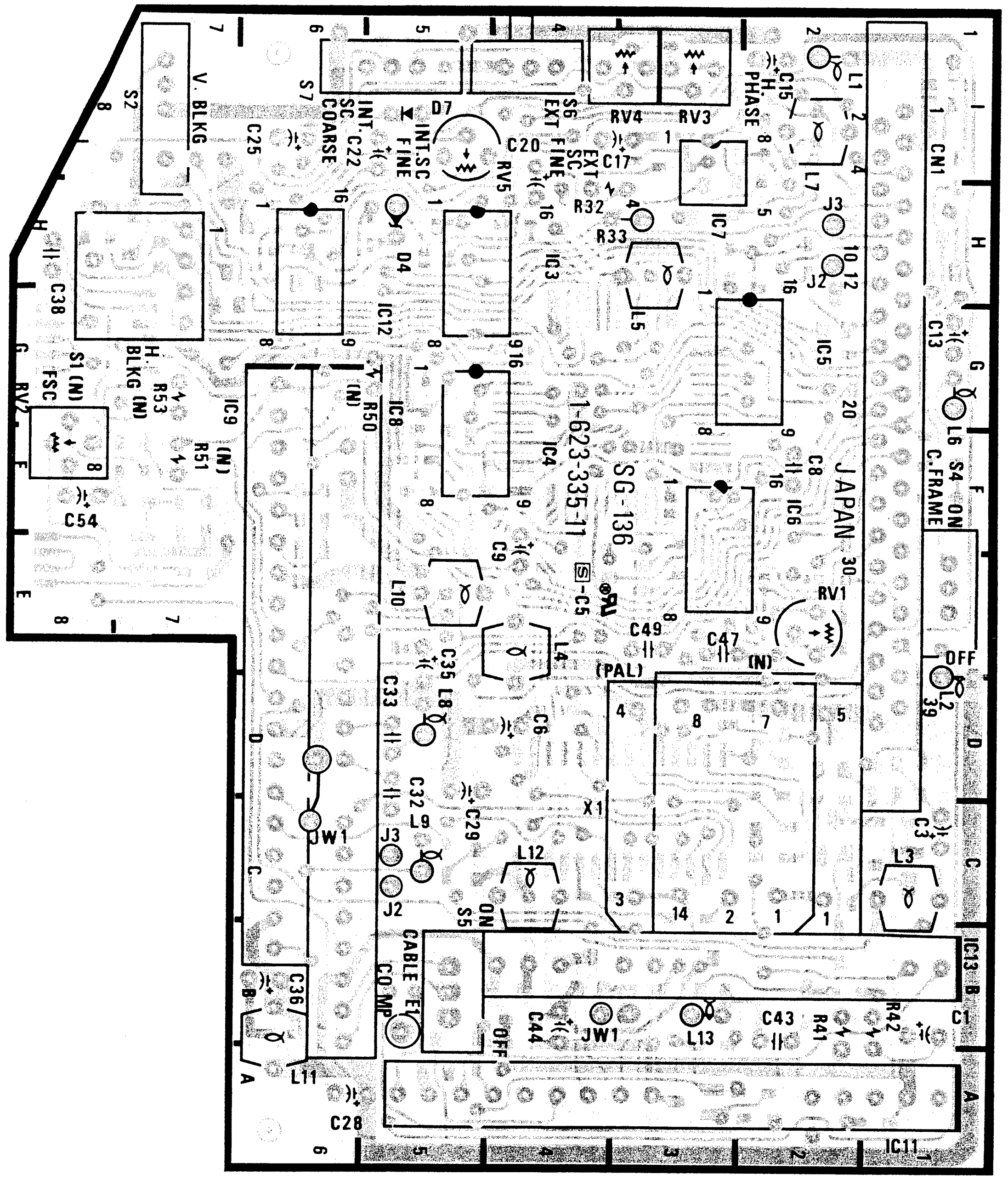

SG-136
1-623-335-11
JAPAN
CN1
IC1
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC11
IC12
IC13
RV1
RV2
RV3
RV4
RV5
S1 (N) FSC
S2
S4 ON C.FRAME OFF
S5 ON CABLE COMP OFF
S6 SC EXT FINE
S7 INT.SC COARSE
V. BLKG
H. BLKG (N)
H. PHASE
INT.SC FINE
SC EXT
X1
JW1
J2
J3
L1
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
D4
D7
E1
C1
C3
C6
C8
C9
C13
C15
C17
C20
C22
C25
C28
C29
C32
C33
C35
C36
C38
C39
C43
C44
C47
C49
C54
R32
R33
R41
R42
R50
R51
R53
(PAL)
(N)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
7
8

1-623-335-11 COMPONENT SIDE

CN1	I -1
D1	E -3
D2	H -6
D3	G -2
D4	H -5
D5	E -2
D6	H -5
D7	I -5
D8	H -7
D9	H -7
E1	B -5
IC1	C -3
IC2	G -3
IC3	H -5
IC4	F -5
IC5	G -2
IC6	E -3
IC7	I -3
IC8	D -6
IC10	G -8
IC11	A -3
IC12	H -6
IC13	B -3
IC14	E -8
Q1	C -2
Q2	D -2
Q3	C -1
Q4	H -1
Q5	H -5
Q6	H -3
Q7	A -3
Q8	B -3
Q9	B -4
RV1	E -2
RV2	F -8
RV3	I -3
RV4	I -3
RV5	I -5
S1	H -7
S2	I -7
S4	E -1
S5	B -5
S6	I -4
S7	I -5
X1	C-4

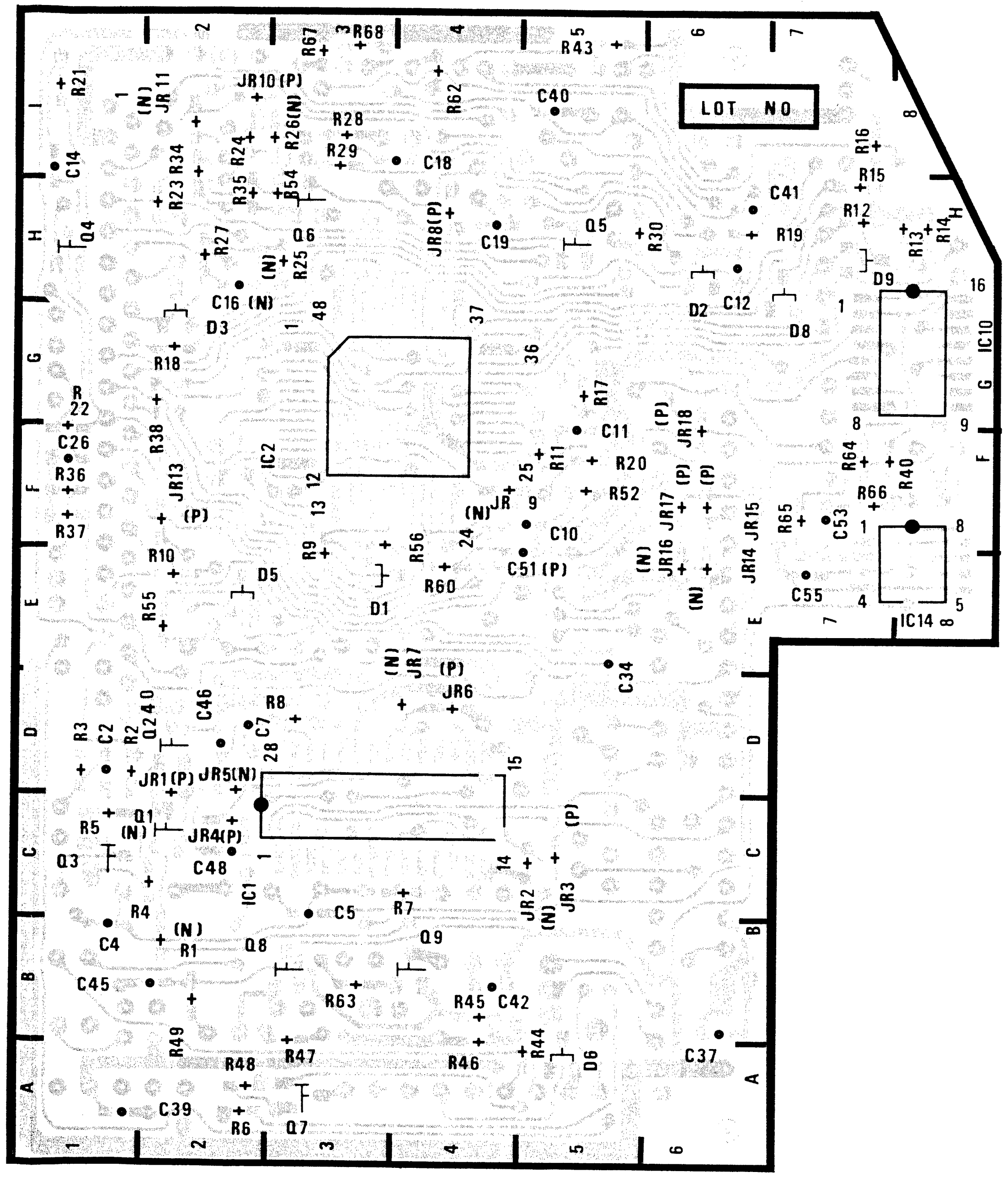

R21
C14
Q4
R22
C26
R36
R37
R38
R55
R3
C2
R2
Q1
(N)
R5
Q3
R4
C4
C45
A
B
C
D
E
F
G
H
I

SG-136/136P BOARD


V. BLKG
S2
S7
INT. SC
SC. C22
COARSE
D7
INT.SC
FINE
RV5
C20
S6
EXT
FINE
SC. EXT
C17
RV4
RV3
H. PHASE
C15
L1
L7
CN1
IC7
IC3
IC12
D4
J3
J2
R32
R33
L5
IC5
C13
C3
C38
S1 (N)
FSC
H. BLKG (N)
R53
R51
RV2
IC9
C54
IC8
R50
IC4
1-623-335-11
SG-136
JAPAN
IC6
C8
L6
S4 ON
C.FRAME
RV1
C9
C5
L10
L4
C49
C47
(PAL)
(N)
OFF
L2
C35
L8
C33
C6
X1
C32
L9
C29
JW1
J3
J2
L12
L3
S5 ON
CABLE
COMP
E1
C36
C44
JW1
L13
C43
R41
R42
C1
IC13
L11
C28
IC11
OFF
C25

1-623-335-11 COMPONENT SIDE

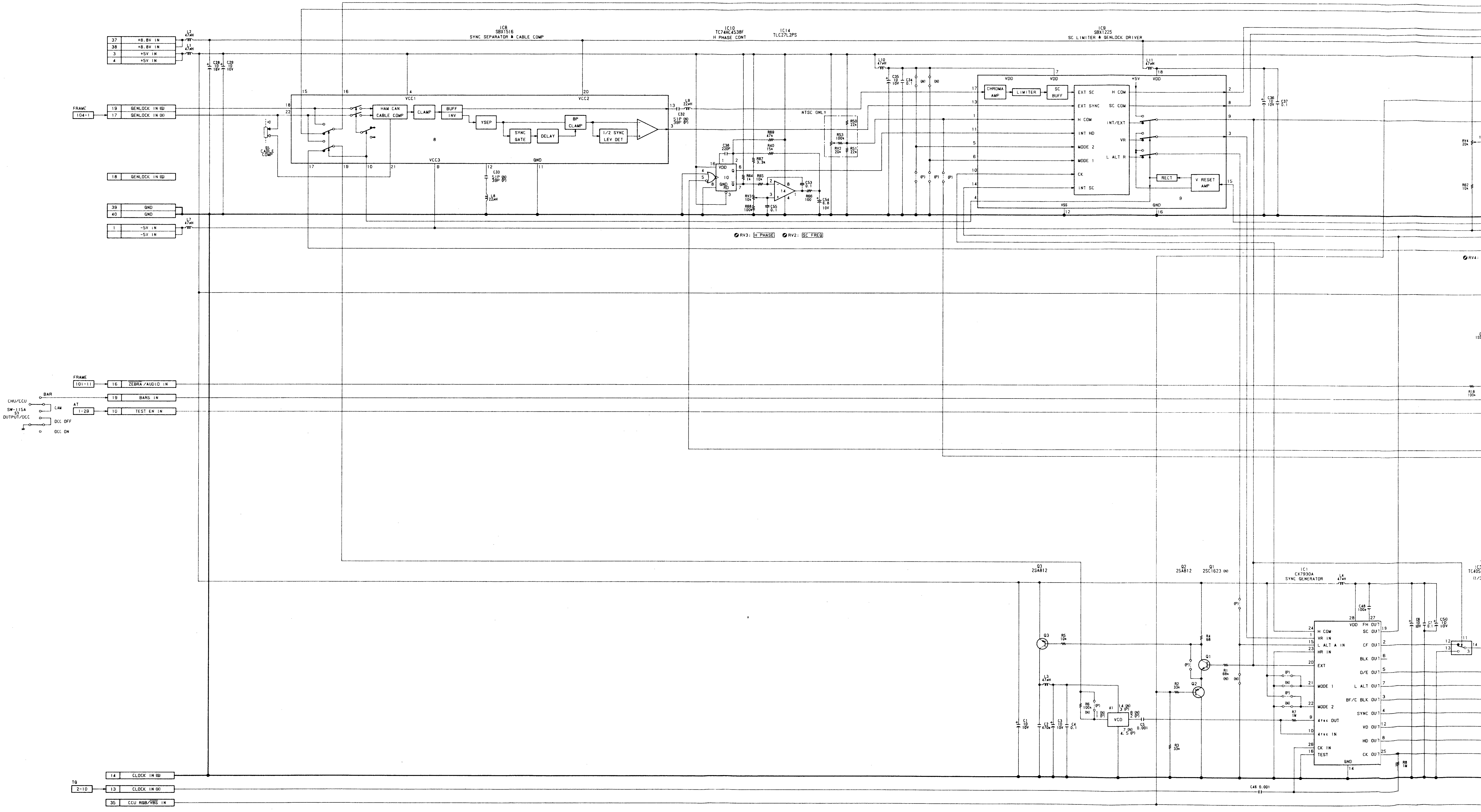
CN1	I -1
D1	E-3
D2	H-6
D3	G-2
D4	H-5
D5	E-2
D6	H-5
D7	I -5
D8	H-7
D9	H-7
E1	B-5
IC1	C-3
IC2	G-3
IC3	H-5
IC4	F-5
IC5	G-2
IC6	E-3
IC7	I -3
IC8	D-6
IC10	G-8
IC11	A-3
IC12	H-6
IC13	B-3
IC14	E-8
Q1	C-2
Q2	D-2
Q3	C-1
Q4	H-1
Q5	H-5
Q6	H-3
Q7	A-3
Q8	B-3
Q9	B-4
RV1	E-2
RV2	F-8
RV3	I -3
RV4	I -3
RV5	I -5
S1	H-7
S2	I -7
S4	E-1
S5	B-5
S6	I -4
S7	I -5
X1	C-4

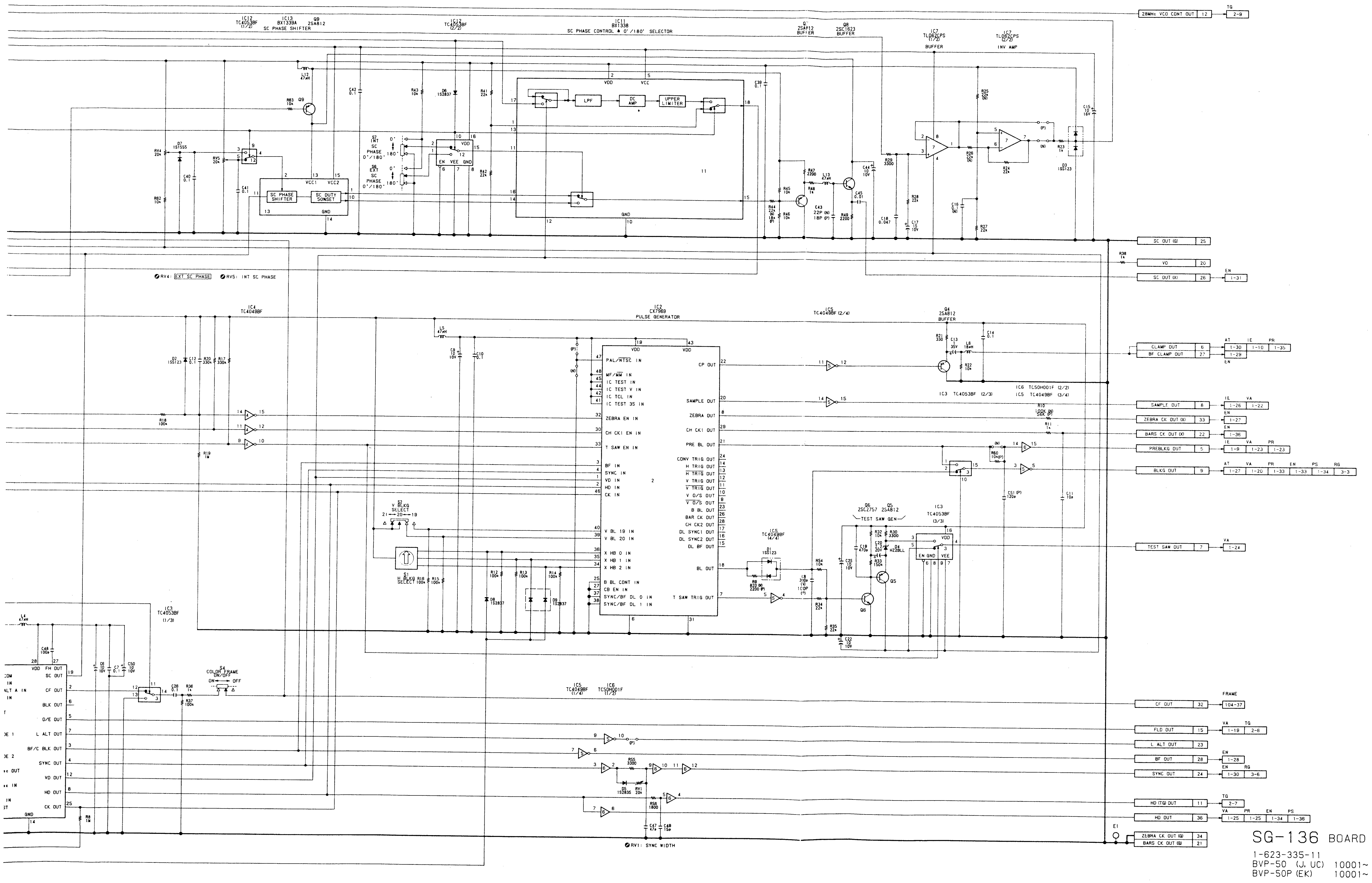

R68
R67
R43
LOT NO
R21
JR11 (N)
JR10 (P)
R28
R29
R62
C40
C18
R16
R15
C14
R34
R23
R24
R35
R26 (N)
R54
C41
R12
R19
R13
R14
Q4
R27
R25 (N)
Q6
JR8 (P)
C19
Q5
R30
D9
C16 (N)
D3
D2
C12
D8
IC10
R18
R 22
C26
R36
R37
R38
JR13
(P)
IC2
R17
(P)
C11
JR18
R11
R20
R52
R64
R40
R66
JR
(N)
C10
JR17
JR16
JR15
R65
C53
R10
R55
R9
R56
R60
C51 (P)
C55
JR14
IC14
D5
D1
JR7 (N)
(P)
JR6
C34
R3
C2
R2
Q240
C46
R8
C7
JR1 (P)
JR5 (N)
R5
Q1 (N)
JR4 (P)
C48
Q3
IC1
JR2 (N)
JR3
(P)
R4
C5
R7
C4
R1 (N)
Q8
Q9
C45
R63
R45
C42
R49
R48
R47
R46
R44
D6
C37
C39
R6
Q7

1-623-335-11 SOLDERING SIDE

CN1	I -1
D1	E-3
D2	H-6
D3	G-2
D4	H-5
D5	E-2
D6	H-5
D7	I -5
D8	H-7
D9	H-7
E1	B-5
IC1	C-3
IC2	G-3
IC3	H-5
IC4	F-5
IC5	G-2
IC6	E-3
IC7	I -3
IC8	D-6
IC10	G-8
IC11	A-3
IC12	H-6
IC13	B-3
IC14	E-8
Q1	C-2
Q2	D-2
Q3	C-1
Q4	H-1
Q5	H-5
Q6	H-3
Q7	A-3
Q8	B-3
Q9	B-4
RV1	E-2
RV2	F-8
RV3	I -3
RV4	I -3
RV5	I -5
S1	H-7
S2	I -7
S4	E-1
S5	B-5
S6	I -4
S7	I -5
X1	C-4

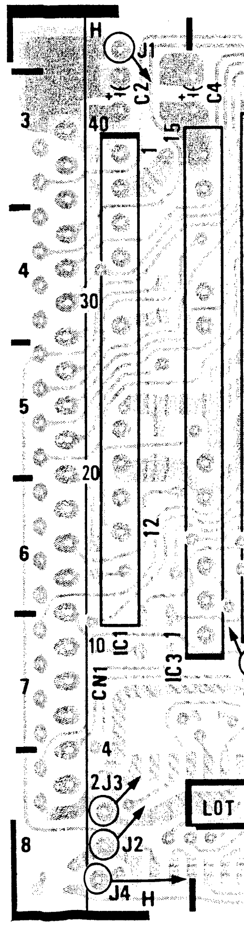
SG-136/136P BOARD


37 +8.8V IN
38 +8.8V IN
3 +5V IN
4 +5V IN
FRAME 104-1
19 GENLOCK IN (G)
17 GENLOCK IN (X)
18 GENLOCK IN (G)
39 GND
40 GND
1 -5V IN
-5V IN
IC8 SBX1516 SYNC SEPARATOR & CABLE COMP
HAM CAN CABLE COMP
CLAMP
BUFF INV
YSEP
SYNC GATE
DELAY
BP CLAMP
1/2 SYNC LEV DET
VCC1
VCC2
VCC3
GND
S1 CABLE COMP
IC10 TC74HC4538F H PHASE CONT
IC14 TLC27L2PS
NTSC ONLY
RV3: H PHASE
RV2: SC FREQ
IC9 SBX1225 SC LIMITER & GENLOCK DRIVER
CHROMA AMP
LIMITER
SC BUFF
EXT SC
EXT SYNC
H COM
INT HD
MODE 2
MODE 1
CK
INT SC
SC COM
INT/EXT
VR
L ALT R
RECT
V RESET AMP
VDD
VSS
RV4
FRAME 101-11
16 ZEBRA/AUDIO IN
19 BARS IN
AT 1-28
10 TEST EN IN
BAR
CHU/CCU
CAM
SW-115A S3 OUTPUT/DCC
DCC OFF
DCC ON
Q3 2SA812
Q2 2SA812
Q1 2SC1623 (N)
VCO
IC1 CX7930A SYNC GENERATOR
H COM
VR IN
L ALT A IN
HR IN
EXT
MODE 1
MODE 2
4fsc OUT
4fsc IN
CK IN
TEST
FH OUT
SC OUT
CF OUT
BLK OUT
D/E OUT
L ALT OUT
BF/C BLK OUT
SYNC OUT
VD OUT
HD OUT
CK OUT
TG 2-10
14 CLOCK IN (G)
13 CLOCK IN (X)
35 CCU RGB/VBS IN

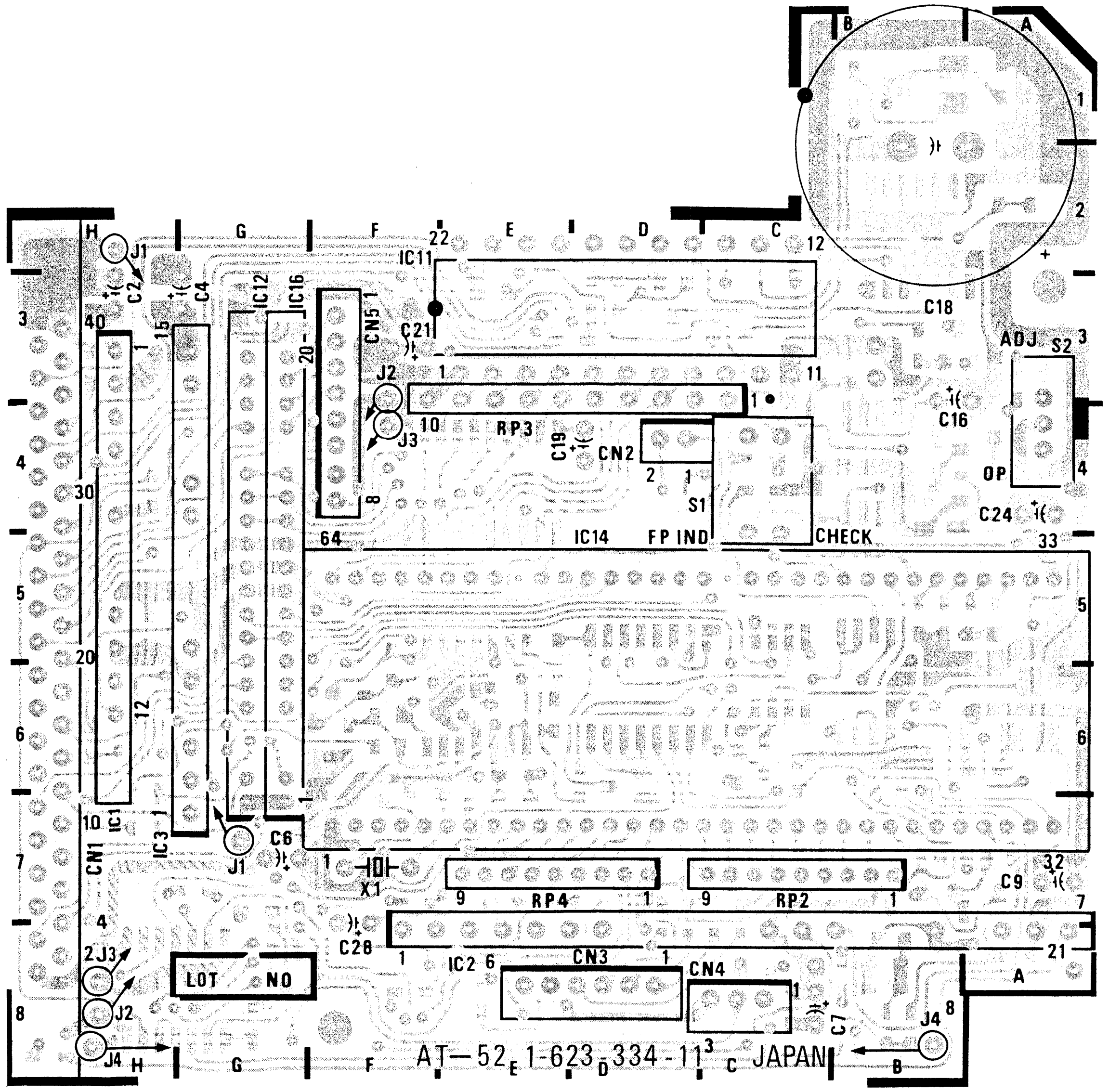

IC12 TC4053BF (1/2)
IC13 BX1339A SC PHASE SHIFTER
Q9 2SA812
IC12 TC4053BF (2/2)
IC11 BX1338 SC PHASE CONTROL & 0°/180° SELECTOR
Q7 2SA812 BUFFER
Q8 2SC1623 BUFFER
IC7 TL062CPS (1/2) BUFFER
IC7 TL062CPS (2/2) INV AMP
LPF
DC AMP
UPPER LIMITER
SC PHASE SHIFTER
SC DUTY SONSET
S7 INT SC PHASE 0°/180°
S6 EXT SC PHASE 0°/180°
RV4: EXT SC PHASE
RV5: INT SC PHASE
28MHz VCO CONT OUT
SC OUT (G)
VD
SC OUT (X)
IC4 TC4049BF
IC2 CX7969 PULSE GENERATOR
IC5 TC4049BF (2/4)
Q4 2SA812 BUFFER
PAL/NTSC IN
MF/MM IN
IC TEST IN
IC TEST V IN
IC TCL IN
IC TEST 35 IN
ZEBRA EN IN
CH CK1 EN IN
T SAW EN IN
BF IN
SYNC IN
VD IN
HD IN
CK IN
V BL 19 IN
V BL 20 IN
X HB 0 IN
X HB 1 IN
X HB 2 IN
B BL CONT IN
CB EN IN
SYNC/BF DL 0 IN
SYNC/BF DL 1 IN
CP OUT
SAMPLE OUT
ZEBRA OUT
CH CK1 OUT
PRE BL OUT
CONV TRIG OUT
H TRIG OUT
V TRIG OUT
V D/S OUT
B BL OUT
BAR CK OUT
CH CK2 OUT
DL SYNC1 OUT
DL SYNC2 OUT
DL BF OUT
BL OUT
T SAW TRIG OUT
S2 V BLKG SELECT
S1 H BLKG SELECT
IC3 TC4053BF (2/3)
IC6 TC50H001F (2/2)
IC5 TC4049BF (3/4)
Q6 2SC2757
Q5 2SA812
TEST SAW GEN
IC3 TC4053BF (3/3)
CLAMP OUT
BF CLAMP OUT
SAMPLE OUT
ZEBRA CK OUT (X)
BARS CK OUT (X)
PREBLKG OUT
BLKG OUT
TEST SAW OUT
IC3 TC4053BF (1/3)
S4 COLOR FRAME ON/OFF
IC5 TC4049BF (1/4)
IC6 TC50H001F (1/2)
VDD
FH OUT
SC OUT
CF OUT
BLK OUT
D/E OUT
L ALT OUT
BF/C BLK OUT
SYNC OUT
VD OUT
HD OUT
CK OUT
GND
CF OUT
FLD OUT
L ALT OUT
BF OUT
SYNC OUT
HD (TG) OUT
HD OUT
ZEBRA CK OUT (G)
BARS CK OUT (G)
RV1: SYNC WIDTH
FRAME
E1

SG-136 BOARD
1-623-335-11
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

AT-52 BO

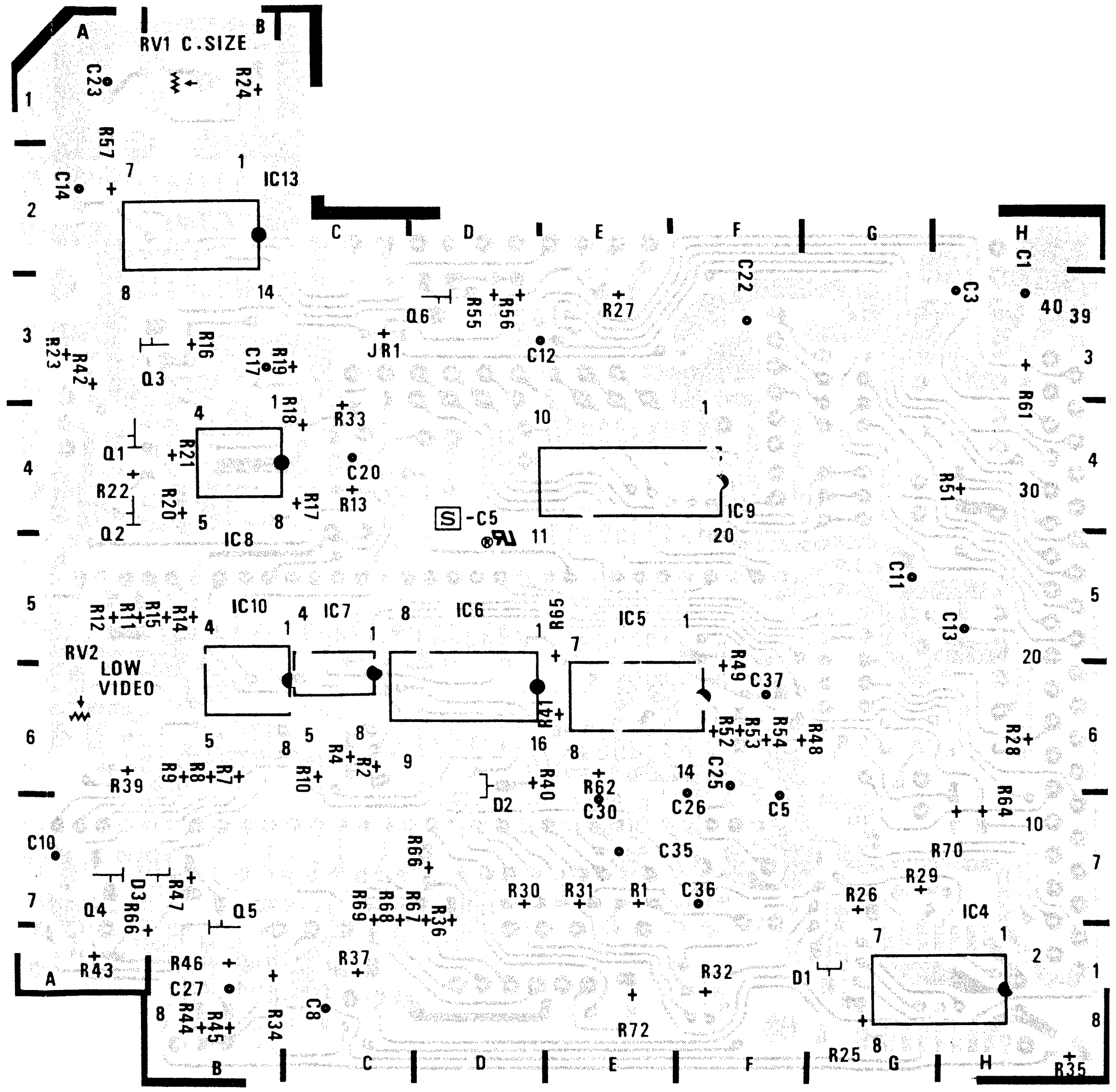

H
J1
C2
C4
3
40
15
4
30
5
20
12
6
10
IC1
IC3
1
CN1
7
4
2 J3
J2
LOT
8
J4
H

AT-52 BOARD


IC1
IC3
IC12
IC16
CN5
IC11
C18
ADJ
S2
OP
C16
C24
RP3
CN2
S1
FP IND
CHECK
IC14
X1
RP4
RP2
C9
C28
IC2
CN3
CN4
C7
LOT NO
J1
J2
J3
J4
CN1
C2
C4
C6
C19
C21
AT-52 1-623-334-11 JAPAN

1-623-334-11 COMPONENT SIDE

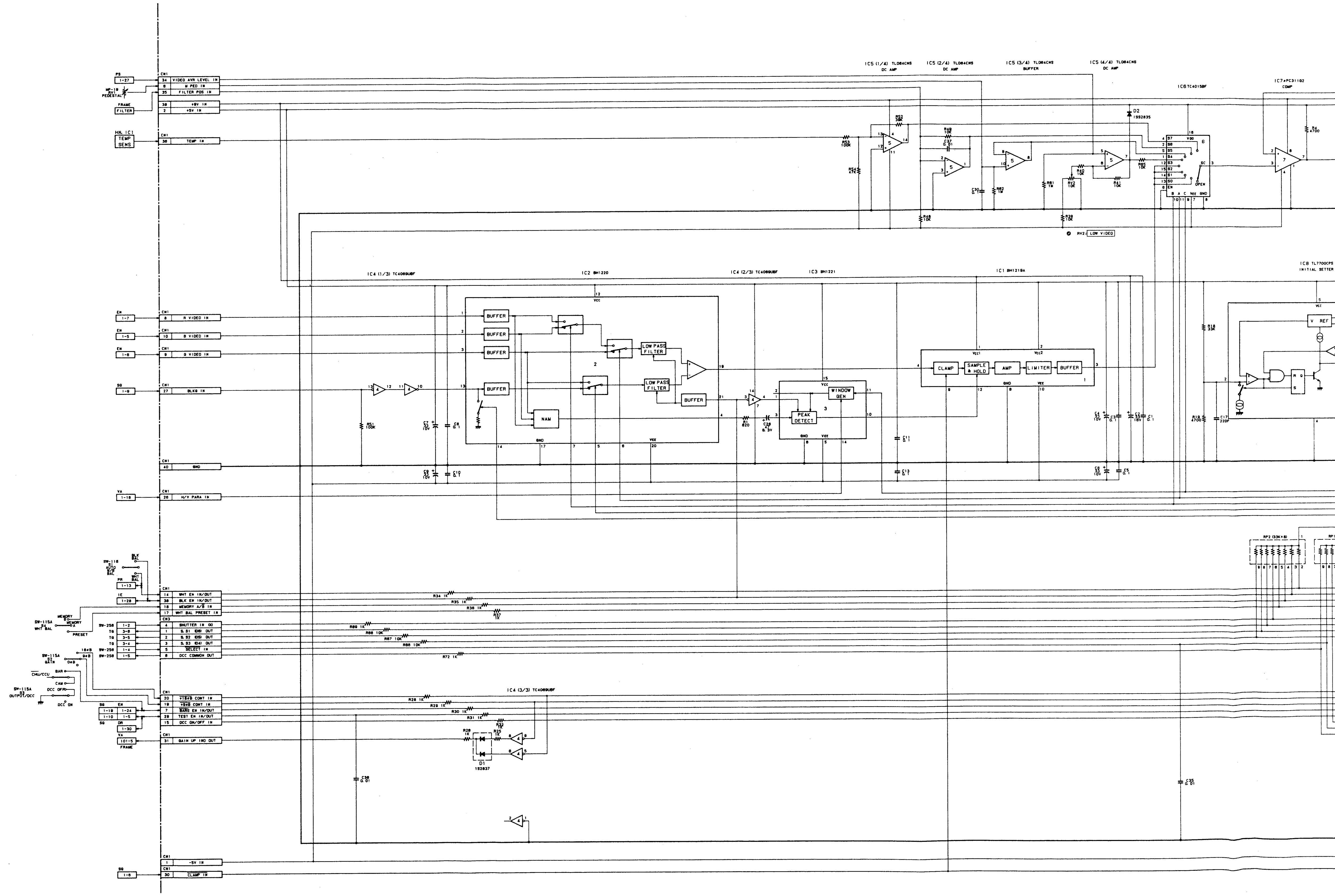
CN1	H-7
CN2	D-4
CN3	D-8
CN4	C-8
CN5	F-3
D1	G-8
D2	D-6
D3	B-7
IC1	H-6
IC2	E-7
IC4	G-8
IC5	E-6
IC6	D-6
IC7	C-6
IC8	B-4
IC9	E-4
IC10	B-6
IC11	E-2
IC12	G-3
IC13	B-2
IC14	D-5
IC16	G-3
Q1	A-4
Q2	A-4
Q3	B-3
Q4	A-7
Q5	B-8
Q6	D-3
RP2	C-7
RP3	D-3
RP4	E-7
RV1	B-1
RV2	A-6
S1	C-4
S2	A-3
X1	F-7

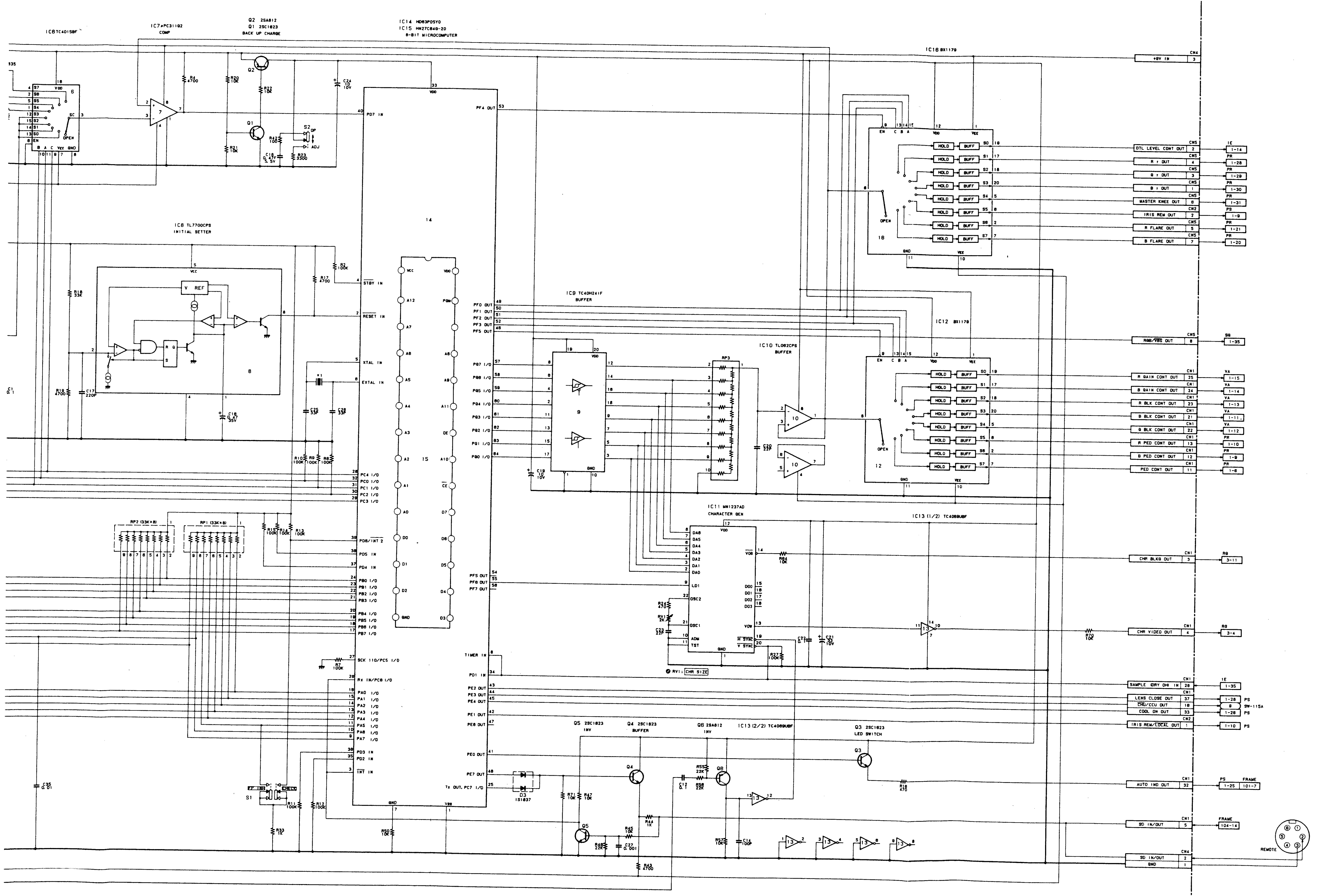

RV1 C.SIZE
R24
C23
R57
C14
IC13
Q6
R55
R56
R27
C22
C3
C1
R16
C17
R19
JR1
C12
R23
R42
Q3
R18
R33
IC9
R61
Q1
R21
C20
R13
R17
R22
R20
IC8
Q2
S-C5
R51
C11
C13
R12
R11
R15
R14
IC10
IC7
IC6
R65
IC5
RV2 LOW VIDEO
R49
C37
R52
R53
R54
R48
R28
R4
R2
R10
R40
R62
C30
C25
C26
C5
R39
R9
R8
R7
D2
R64
C10
R66
C35
R70
R47
D3
R29
R36
Q4
Q5
R69
R68
R67
R30
R31
R1
C36
R26
IC4
R43
R46
R37
R32
D1
C27
C8
R44
R45
R34
R72
R25
R35

1-623-334-11 SOLDERING SIDE

CN1	H-7
CN2	D-4
CN3	D-8
CN4	C-8
CN5	F-3
D1	G-8
D2	D-6
D3	B-7
IC1	H-6
IC2	E-7
IC4	G-8
IC5	E-6
IC6	D-6
IC7	C-6
IC8	B-4
IC9	E-4
IC10	B-6
IC11	E-2
IC12	G-3
IC13	B-2
IC14	D-5
IC16	G-3
Q1	A-4
Q2	A-4
Q3	B-3
Q4	A-7
Q5	B-8
Q6	D-3
RP2	C-7
RP3	D-3
RP4	E-7
RV1	B-1
RV2	A-6
S1	C-4
S2	A-3
X1	F-7

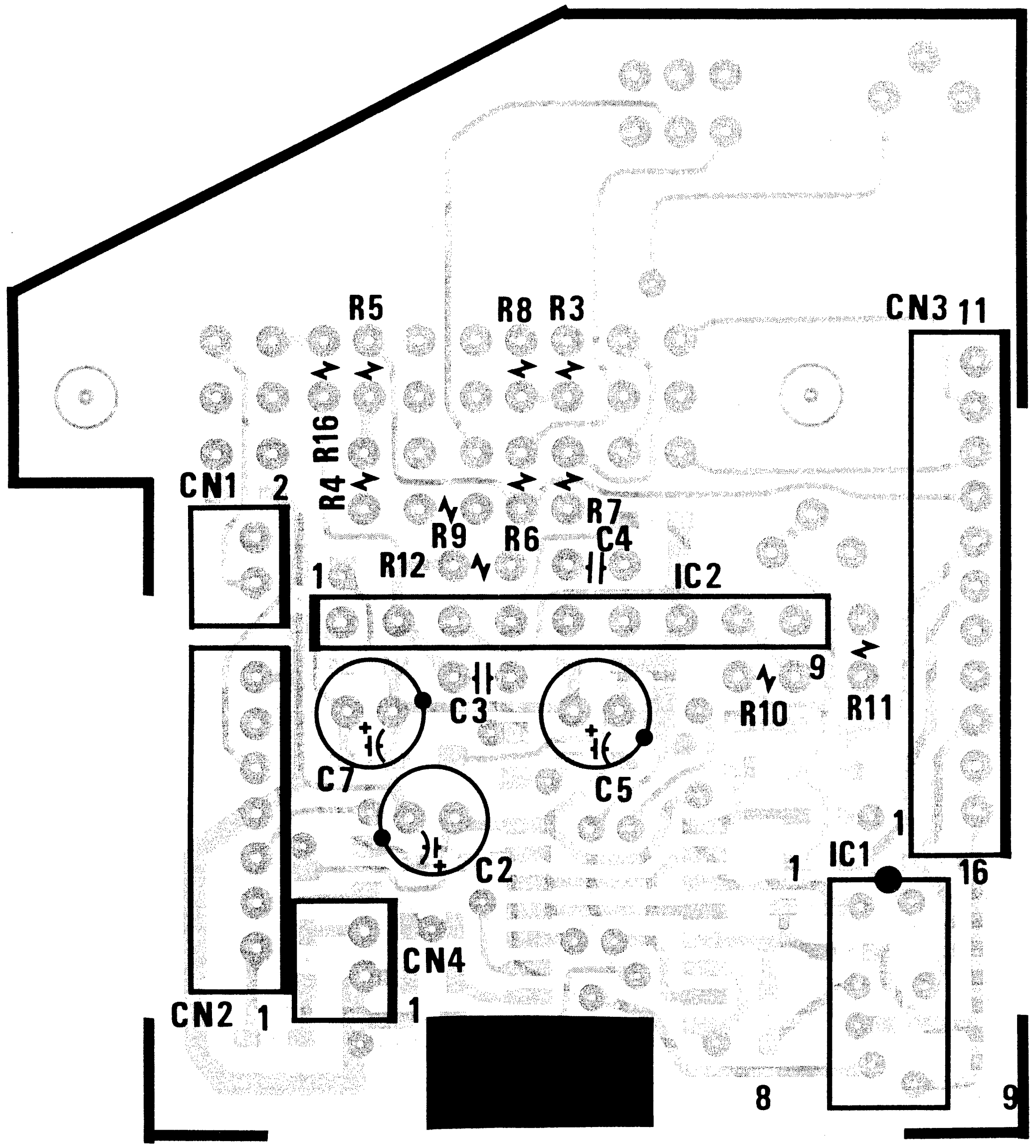
AT-52 BOARD


PS
1-27
MP-19 RV1 PEDESTAL
FRAME
FILTER
HN, IC1
TEMP SENS
CN1
34 VIDEO AVR LEVEL IN
8 M PED IN
35 FILTER POS IN
39 +9V IN
2 +5V IN
38 TEMP IN
IC5 (1/4) TL084CNS DC AMP
IC5 (2/4) TL084CNS DC AMP
IC5 (3/4) TL084CNS BUFFER
IC5 (4/4) TL084CNS DC AMP
IC6 TC4015BF
IC7 μPC311G2 COMP
D2 1SS283S
R52 39K
R53 100K
R54 47K
R49 10K
C37 0.01
C30 0.1
R62 1M
R61 1M
R40 10K
RV2 10K
R41 10K
R65 10K
R48 10K
R39 10K
R4 4700
RV2: LOW VIDEO
OPEN
IC4 (1/3) TC4069UBF
IC2 BH1220
IC4 (2/3) TC4069UBF
IC3 BH1221
IC1 BH1219A
IC8 TL7700CPS INITIAL SETTER
BUFFER
LOW PASS FILTER
NAM
PEAK DETECT
WINDOW GEN
CLAMP
SAMPLE & HOLD
AMP
LIMITER
V REF
VCC
GND
VEE
R51 100K
C7 33 10V
C8 0.1
C9 33 10V
C10 0.1
R1 820
C28 47 6.3V
C11 0.1
C13 0.1
C4 33 10V
C3 0.1
C5 0.1
R18 33K
R19 4700
C17 220P
EN 1-7
8 R VIDEO IN
EN 1-5
10 G VIDEO IN
EN 1-8
9 B VIDEO IN
SG 1-9
27 BLKG IN
40 GND
VA 1-18
28 H/V PARA IN
SW-116 S1 AUTO W/B BAL
BLK BAL
WHT BAL
PR 1-13
IE 1-28
14 WHT EN IN/OUT
38 BLK EN IN/OUT
18 MEMORY A/B IN
17 WHT BAL PRESET IN
SW-115A S4 WHT BAL
MEMORY B
MEMORY A
PRESET
CN3
SW-258 1-2
4 SHUTTER IN (X)
TG 3-6
1 S. S1 (D6) OUT
TG 3-5
2 S. S2 (D5) OUT
TG 3-4
3 S. S3 (D4) OUT
SW-258 1-4
5 SELECT IN
SW-258 1-5
6 DCC COMMON OUT
SW-115A S2 GAIN
18dB
9dB
0dB
BAR
CHU/CCU
CAM
SW-115A S3 OUTPUT/DCC
DCC OFF
DCC ON
20 +18dB CONT IN
19 +9dB CONT IN
7 BARS EN IN/OUT
29 TEST EN IN/OUT
15 DCC ON/OFF IN
SG 1-19
EN 1-24
SG 1-10
EN 1-5
DR 1-30
VA 101-5 FRAME
31 GAIN UP IND OUT
IC4 (3/3) TC4069UBF
D1 1S2837
R34 1K
R35 1K
R36 1K
R37 1K
R89 1K
R88 10K
R87 10K
R86 10K
R72 1K
R28 1K
R29 1K
R30 1K
R31 1K
R26 1K
R25 1K
R32 1K
C38 0.01
C35 0.01
RP2 (33K×8)
RP1
1 -5V IN
SG 1-6
30 CLAMP IN

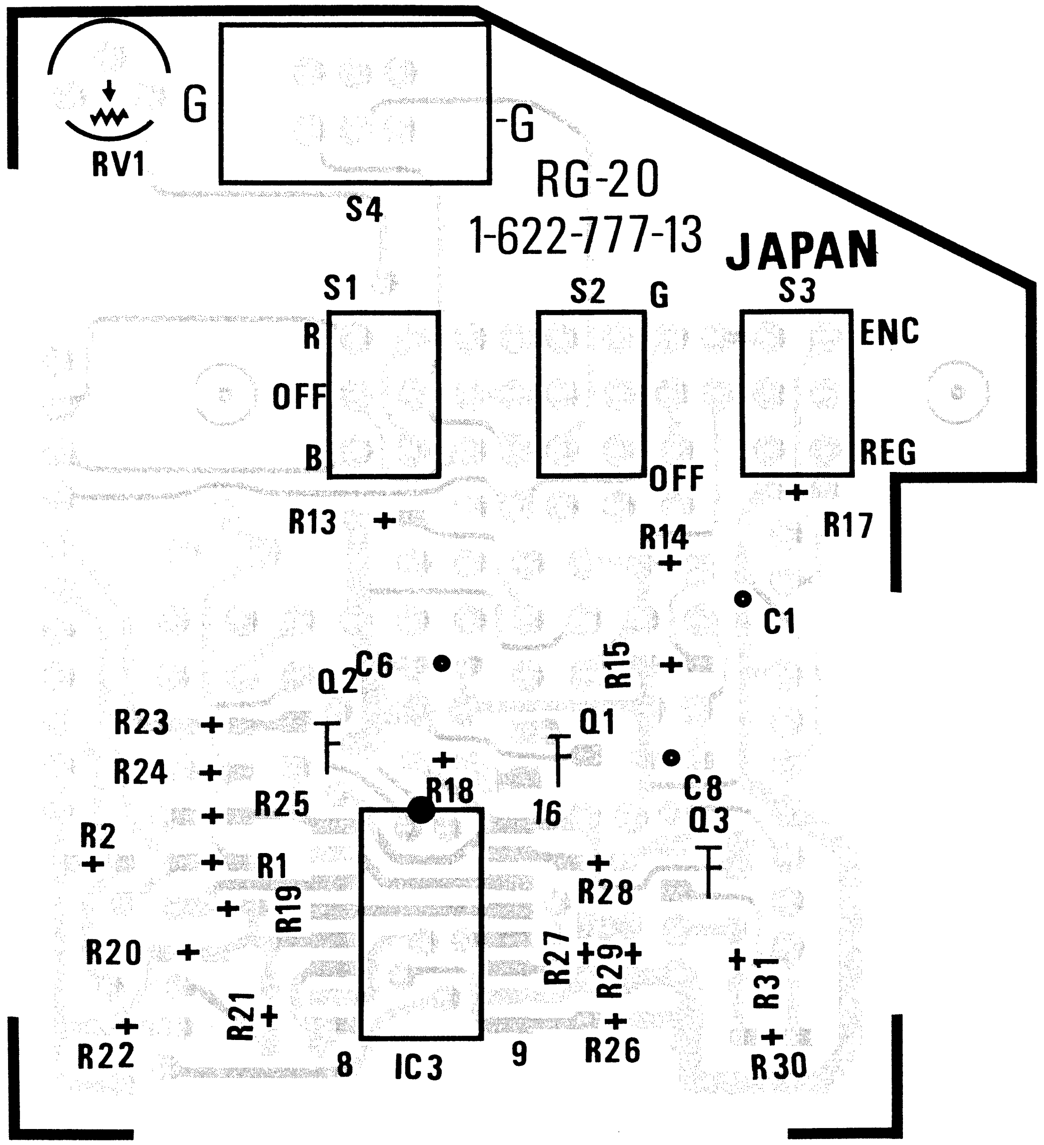

IC6 TC4015BF
IC7 μPC311G2
COMP
Q2 2SA812
Q1 2SC1823
BACK UP CHARGE
IC14 HD63P05Y0
IC15 HN27C64G-20
8-BIT MICROCOMPUTER
IC16 BX1179
IC8 TL7700CPS
INITIAL SETTER
V REF
IC9 TC40H241F
BUFFER
RP3
IC10 TL082CPS
BUFFER
IC12 BX1179
HOLD
BUFF
OPEN
IC11 MN1237AD
CHARACTER GEN
IC13 (1/2) TC4069UBF
RV1: CHR SIZE
RP2 (33K×8)
RP1 (33K×8)
Q5 2SC1823
INV
Q4 2SC1823
BUFFER
Q6 2SA812
INV
IC13 (2/2) TC4069UBF
Q3 2SC1823
LED SWITCH
D3 1S1837
S1
S2
+9V IN
CN4 3
DTL LEVEL CONT OUT
CN5 2
IE 1-14
R γ OUT
CN5 4
PR 1-28
G γ OUT
CN5 3
PR 1-29
B γ OUT
CN5 1
PR 1-30
MASTER KNEE OUT
CN5 6
PR 1-31
IRIS REM OUT
CN2 2
PS 1-9
R FLARE OUT
CN5 5
PR 1-21
B FLARE OUT
CN5 7
PR 1-20
RGB/VBS OUT
CN5 8
SG 1-35
R GAIN CONT OUT
CN1 25
VA 1-15
B GAIN CONT OUT
CN1 24
VA 1-14
R BLK CONT OUT
CN1 23
VA 1-13
B BLK CONT OUT
CN1 21
VA 1-11
G BLK CONT OUT
CN1 22
VA 1-12
R PED CONT OUT
CN1 13
PR 1-10
B PED CONT OUT
CN1 12
PR 1-9
PED CONT OUT
CN1 11
PR 1-8
CHR BLKG OUT
CN1 3
RG 3-11
CHR VIDEO OUT
CN1 4
RG 3-4
SAMPLE (DRY OH) IN
CN1 28
IE 1-35
LENS CLOSE OUT
CN1 37
1-28 PS
CHU/CCU OUT
18
8 SW-115A
COOL ON OUT
33
1-26 PS
IRIS REM/LOCAL OUT
CN2 1
1-10 PS
AUTO IND OUT
CN1 32
PS 1-25
FRAME 101-7
SD IN/OUT
CN1 5
FRAME 104-14
SD IN/OUT
CN4 2
GND 1
REMOTE

AT-52 BOARD
1-623-334-11
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

RG-20/20P BOARD

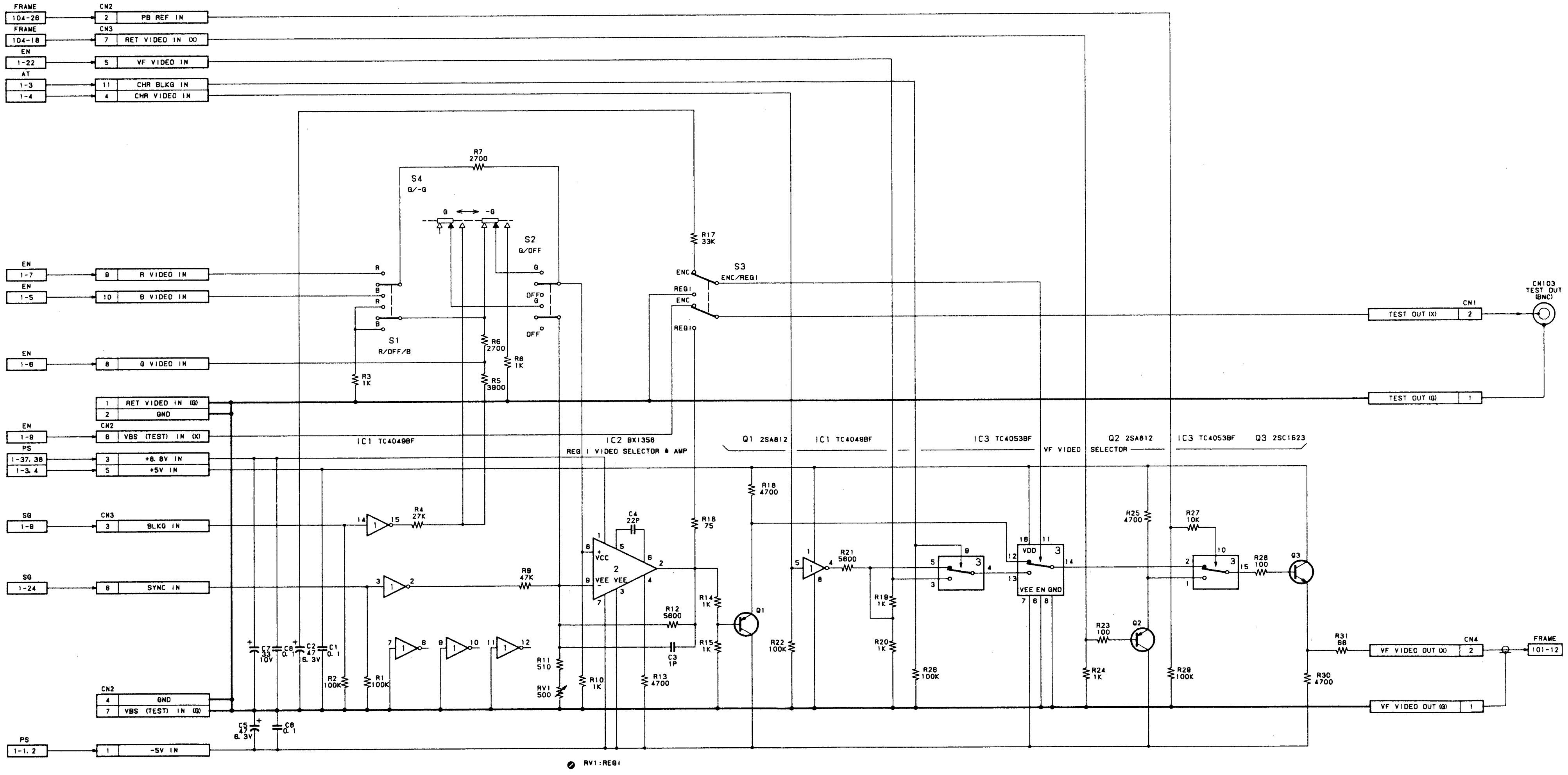

R5
R8
R3
CN3
11
R16
R4
CN1
2
R9
R6
R7
C4
R12
1
IC2
9
R10
R11
C3
C7
C5
C2
1
IC1
1
16
CN4
CN2
1
1
8
9

1-622-777-13 COMPONENT SIDE


RV1
G
-G
S4
RG-20
1-622-777-13
JAPAN
S1
S2
G
S3
R
OFF
B
OFF
ENC
REG
R13
R14
R17
C1
Q2
C6
R15
R23
R24
Q1
R18
C8
R25
16
Q3
R2
R1
R28
R19
R20
R27
R29
R31
R21
R22
8
IC3
9
R26
R30

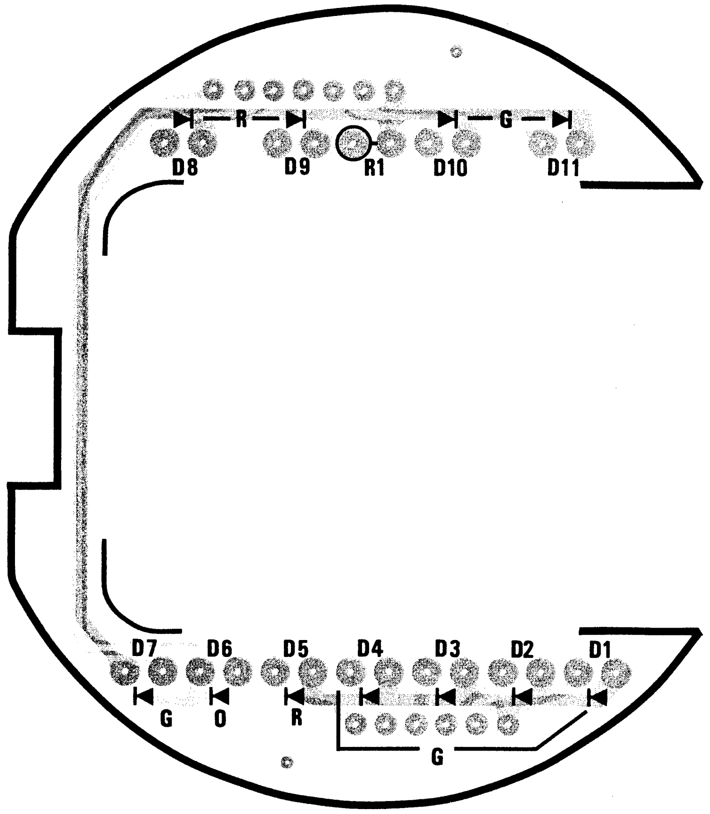
1-622-777-13 SOLDERING SIDE

RG-20/20P BOARD


FRAME
104-26
CN2
2 PB REF IN
FRAME
104-18
CN3
7 RET VIDEO IN (X)
EN
1-22
5 VF VIDEO IN
AT
1-3
1-4
11 CHR BLKG IN
4 CHR VIDEO IN
R7
2700
S4
G/-G
G ←→ -G
S2
G/OFF
EN
1-7
9 R VIDEO IN
EN
1-5
10 B VIDEO IN
S1
R/OFF/B
R6
2700
R8
1K
R5
3900
R3
1K
EN
1-6
8 G VIDEO IN
R17
33K
S3
ENC/REG1
ENC
REG1
REG1
CN1
TEST OUT (X) 2
CN103
TEST OUT
(BNC)
TEST OUT (G) 1
1 RET VIDEO IN (G)
2 GND
EN
1-9
CN2
6 VBS (TEST) IN (X)
PS
1-37, 38
1-3, 4
3 +8.8V IN
5 +5V IN
IC1 TC4049BF
IC2 BX1356
REG 1 VIDEO SELECTOR & AMP
Q1 2SA812
IC1 TC4049BF
IC3 TC4053BF
VF VIDEO SELECTOR
Q2 2SA812
IC3 TC4053BF
Q3 2SC1623
SG
1-9
CN3
3 BLKG IN
R4
27K
C4
22P
R16
75
R18
4700
SG
1-24
6 SYNC IN
R9
47K
VCC
VEE VEE
R14
1K
R12
5600
R15
1K
C3
1P
Q1
R21
5600
R19
1K
R20
1K
VDD
VEE EN GND
R25
4700
R27
10K
R28
100
Q3
R23
100
Q2
R31
68
CN4
VF VIDEO OUT (X) 2
FRAME
101-12
C7
33
10V
C8
0.1
C2
47
6.3V
C1
0.1
R2
100K
R1
100K
R11
510
RV1
500
R10
1K
R13
4700
R22
100K
R26
100K
R24
1K
R29
100K
R30
4700
CN2
4 GND
7 VBS (TEST) IN (G)
VF VIDEO OUT (G) 1
C5
47
6.3V
C6
0.1
PS
1-1, 2
1 -5V IN
RV1:REG1

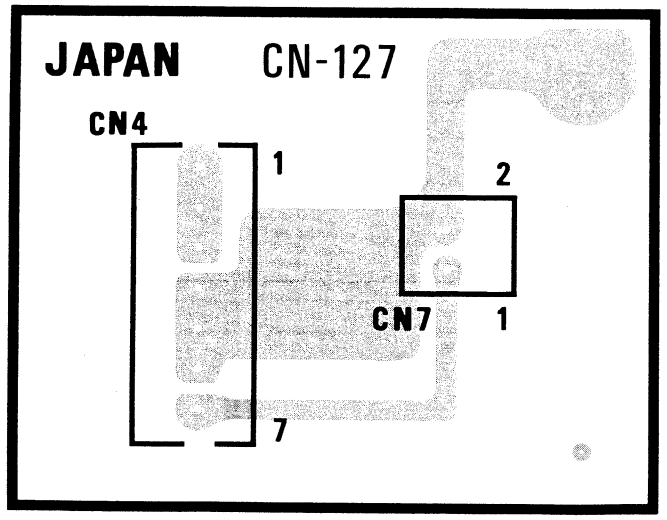
RG-20/20P BOARD
1-618-777-13
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

LP-28 BOARD


R
G
D8
D9
R1
D10
D11
D7
D6
D5
D4
D3
D2
D1
G
O
R
G

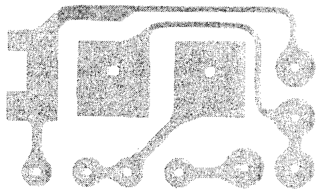
1-612-777-11 COMPONENT SIDE

CN-127 BOARD


JAPAN
CN-127
CN4
1
7
2
CN7
1

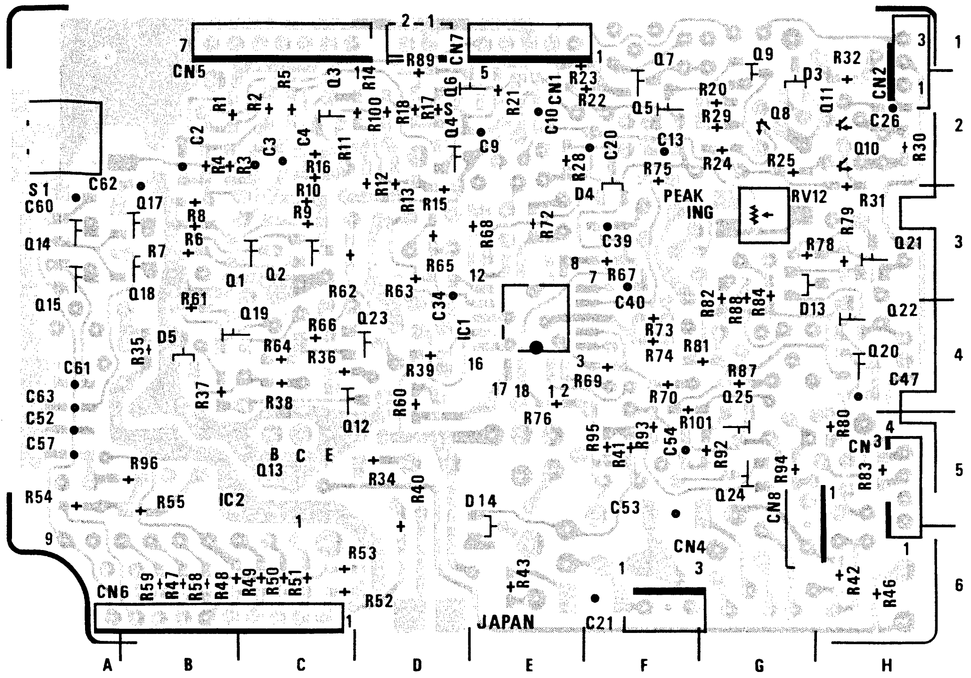
1-618-182-11 COMPONENT SIDE

SW-80 BOARD



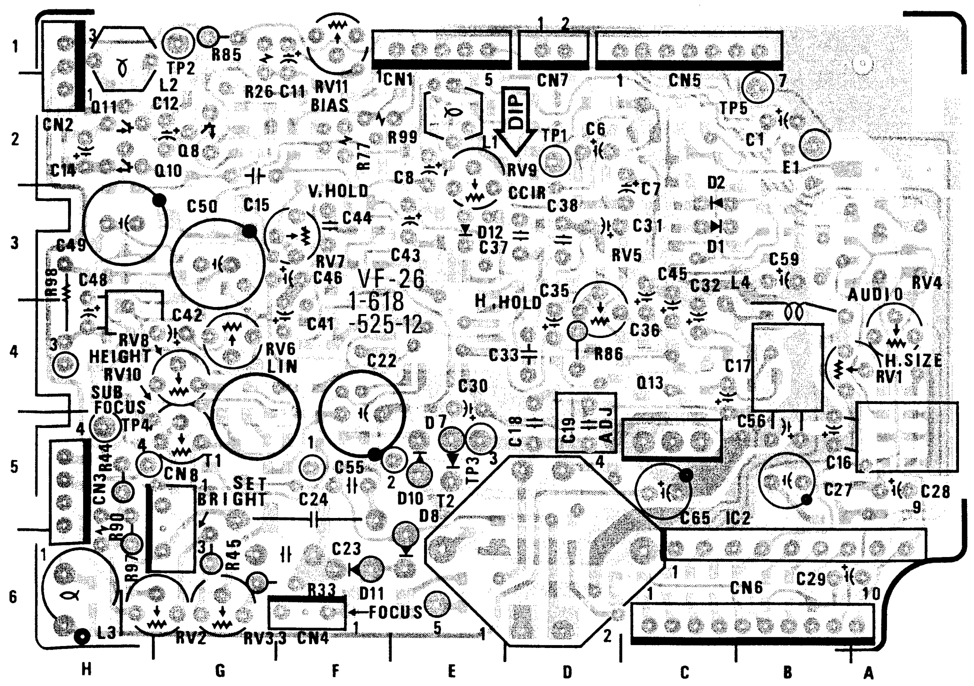
1-612-778-11 SOLDERING SIDE

VF-26 BOARD


CN5
CN7
CN1
CN2
CN3
CN4
CN6
CN8
PEAK ING
IC1
IC2
JAPAN
S1
A
B
C
D
E
F
G
H
1
2
3
4
5
6

1-618-525-12 SOLDERING SIDE

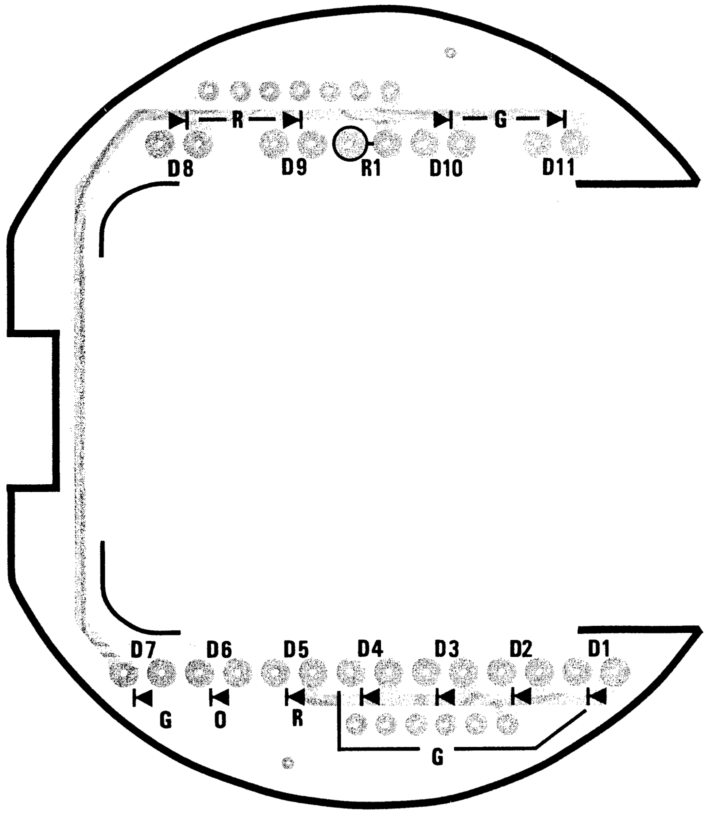
CN1	E-1
CN2	H-2
CN3	H-5
CN4	F-6
CN5	C-1
CN6	B-6
CN7	D-1
CN8	G-5
D1	C-3
D2	C-3
D3	G-2
D4	F-2
D5	B-4
D7	E-5
D8	E-6
D10	E-5
D11	F-6
D12	E-2
D13	G-3
D14	E-5
E1	B-2
IC1	E-4
IC2	B-5
Q1	C-3
Q2	C-3
Q3	C-2
Q4	D-2
Q5	F-2
Q6	D-2
Q7	F-2
Q8	G-2
Q9	G-1
Q10	H-2
Q11	H-2
Q12	C-4
Q13	C-5
Q14	A-3
Q15	A-3
Q17	B-3
Q18	B-3
Q19	B-4
Q20	H-4
Q21	H-3
Q22	H-4
Q23	D-4
Q24	G-5
Q25	G-5
RV1	B-4
RV2	G-6
RV3	G-6
RV4	A-4
RV5	D-4
RV6	G-4
RV7	F-3
RV8	G-4
RV9	E-2
RV10	G-5
RV11	F-1
RV12	G-3
S1	A-2
TP1	D-2
TP2	G-1
TP3	E-5
TP4	H-5
TP5	B-2


CN1
CN7
CN5
CN2
CN3
CN4
CN6
CN8
DIP
BIAS
V.HOLD
CCIR
H.HOLD
AUDIO
H.SIZE
HEIGHT
LIN
SUB FOCUS
SET BRIGHT
FOCUS
ADJ
VF-26
1-618
-525-12
H
G
F
E
D
C
B
A
1
2
3
4
5
6

1-618-525-12 COMPONENT SIDE

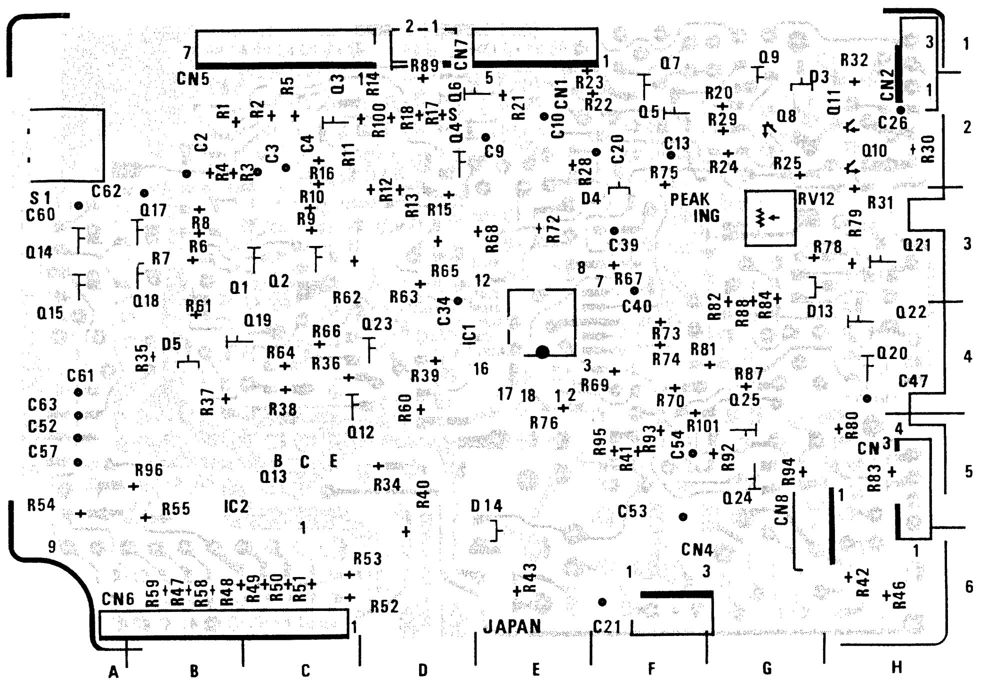
CN1	E-1
CN2	H-2
CN3	H-5
CN4	F-6
CN5	C-1
CN6	B-6
CN7	D-1
CN8	G-5
D1	C-3
D2	C-3
D3	G-2
D4	F-2
D5	B-4
D7	E-5
D8	E-6
D10	E-5
D11	F-6
D12	E-2
D13	G-3
D14	E-5
E1	B-2
IC1	E-4
IC2	B-5
Q1	C-3
Q2	C-3
Q3	C-2
Q4	D-2
Q5	F-2
Q6	D-2
Q7	F-2
Q8	G-2
Q9	G-1
Q10	H-2
Q11	H-2
Q12	C-4
Q13	C-5
Q14	A-3
Q15	A-3
Q17	B-3
Q18	B-3
Q19	B-4
Q20	H-4
Q21	H-3
Q22	H-4
Q23	D-4
Q24	G-5
Q25	G-5
RV1	B-4
RV2	G-6
RV3	G-6
RV4	A-4
RV5	D-4
RV6	G-4
RV7	F-3
RV8	G-4
RV9	E-2
RV10	G-5
RV11	F-1
RV12	G-3
S1	A-2
TP1	D-2
TP2	G-1
TP3	E-5
TP4	H-5
TP5	B-2

LP-28 BOARD


R
G
D8
D9
R1
D10
D11
D7
D6
D5
D4
D3
D2
D1
G
O
R
G

1-612-777-11 COMPONENT SIDE

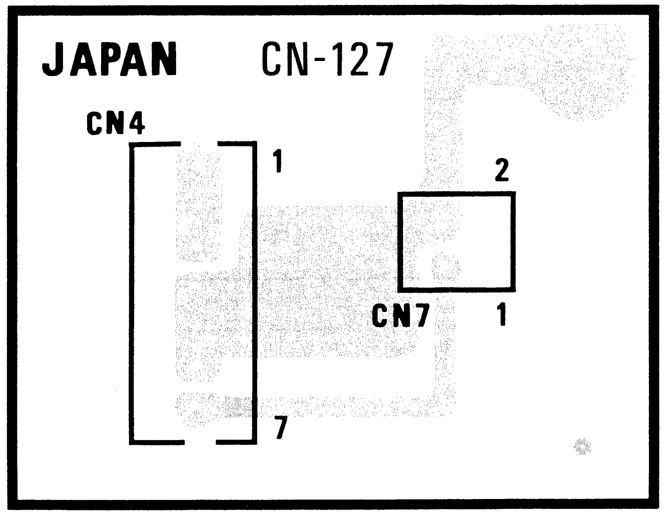
VF-26 BOARD


CN5
CN7
CN1
CN2
CN3
CN4
CN6
CN8
IC1
IC2
S1
PEAK ING
RV12
JAPAN
1
2
3
4
5
6
A
B
C
D
E
F
G
H

1-618-525-12 SOLDERING SIDE

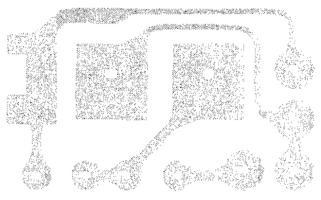
CN1	E-1
CN2	H-2
CN3	H-5
CN4	F-6
CN5	C-1
CN6	B-6
CN7	D-1
CN8	G-5
D1	C-3
D2	C-3
D3	G-2
D4	F-2
D5	B-4
D7	E-5
D8	E-6
D10	E-5
D11	F-6
D12	E-2
D13	G-3
D14	E-5
E1	B-2
IC1	E-4
IC2	B-5
Q1	C-3
Q2	C-3
Q3	C-2
Q4	D-2
Q5	F-2
Q6	D-2
Q7	F-2
Q8	G-2
Q9	G-1
Q10	H-2
Q11	H-2
Q12	C-4
Q13	C-5
Q14	A-3
Q15	A-3
Q17	B-3
Q18	B-3
Q19	B-4
Q20	H-4
Q21	H-3
Q22	H-4
Q23	D-4
Q24	G-5
Q25	G-5
RV1	B-4
RV2	G-6
RV3	G-6
RV4	A-4
RV5	D-4
RV6	G-4
RV7	F-3
RV8	G-4
RV9	E-2
RV10	G-5
RV11	F-1
RV12	G-3
S1	A-2
TP1	D-2
TP2	G-1
TP3	E-5
TP4	H-5
TP5	B-2

CN-127 BOARD

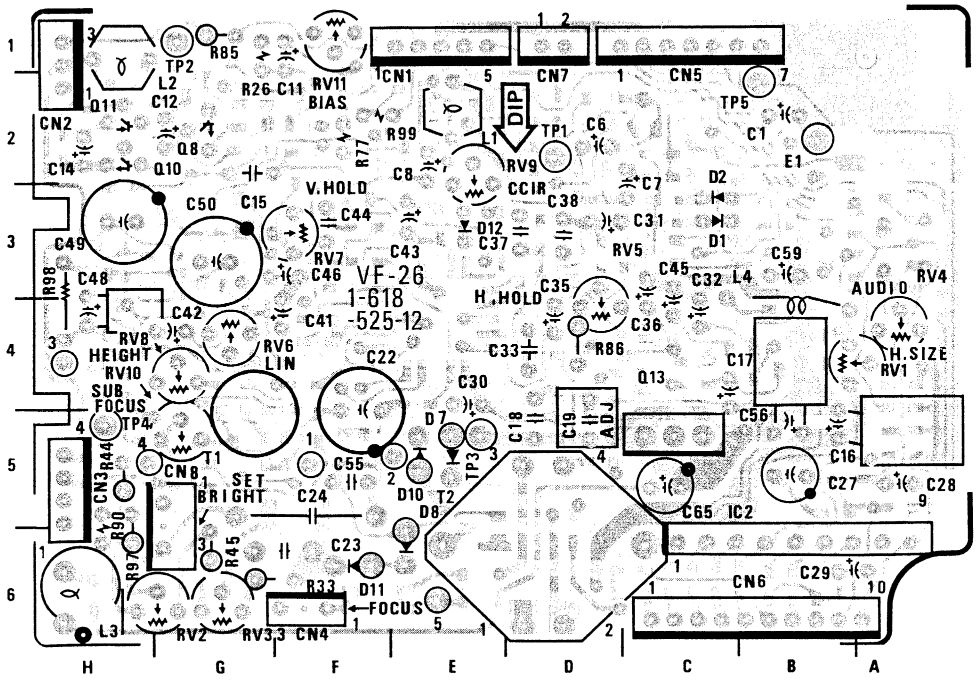

JAPAN
CN-127
CN4
1
7
2
CN7
1

1-618-182-11 COMPONENT SIDE

SW-80 BOARD



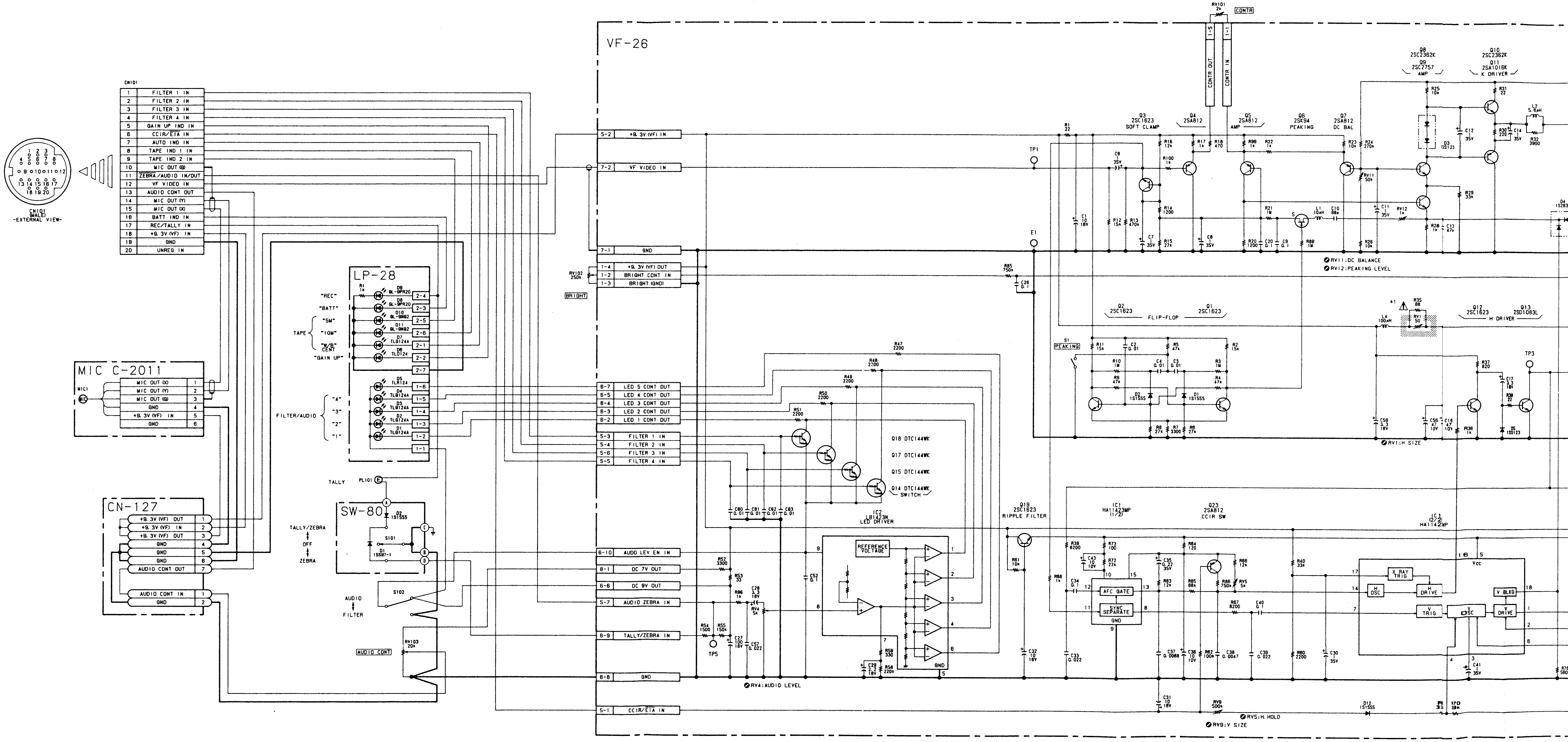
1-612-778-11 SOLDERING SIDE

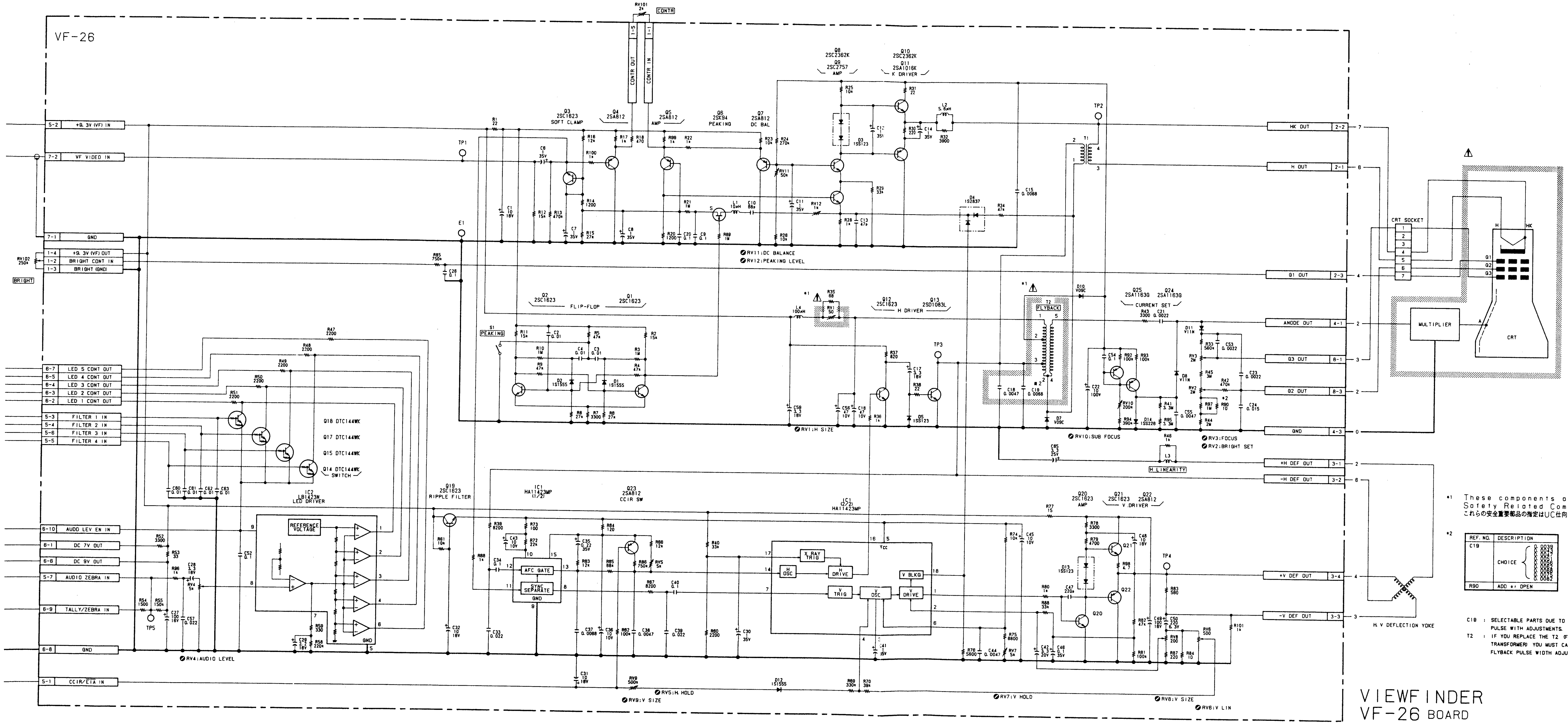

CN1
CN7
CN5
CN2
CN3
CN4
CN6
CN8
TP1
TP2
TP3
TP4
TP5
RV11 BIAS
V.HOLD
DIP
CCIR
H.HOLD
VF-26 1-618 -525-12
AUDIO
H.SIZE
HEIGHT
SUB FOCUS
LIN
SET BRIGHT
ADJ
FOCUS
IC2
1
2
3
4
5
6
H
G
F
E
D
C
B
A

1-618-525-12 COMPONENT SIDE

CN1	E-1
CN2	H-2
CN3	H-5
CN4	F-6
CN5	C-1
CN6	B-6
CN7	D-1
CN8	G-5
D1	C-3
D2	C-3
D3	G-2
D4	F-2
D5	B-4
D7	E-5
D8	E-6
D10	E-5
D11	F-6
D12	E-2
D13	G-3
D14	E-5
E1	B-2
IC1	E-4
IC2	B-5
Q1	C-3
Q2	C-3
Q3	C-2
Q4	D-2
Q5	F-2
Q6	D-2
Q7	F-2
Q8	G-2
Q9	G-1
Q10	H-2
Q11	H-2
Q12	C-4
Q13	C-5
Q14	A-3
Q15	A-3
Q17	B-3
Q18	B-3
Q19	B-4
Q20	H-4
Q21	H-3
Q22	H-4
Q23	D-4
Q24	G-5
Q25	G-5
RV1	B-4
RV2	G-6
RV3	G-6
RV4	A-4
RV5	D-4
RV6	G-4
RV7	F-3
RV8	G-4
RV9	E-2
RV10	G-5
RV11	F-1
RV12	G-3
S1	A-2
TP1	D-2
TP2	G-1
TP3	E-5
TP4	H-5
TP5	B-2

VIEWFINDER
CN-127 BOARD
LP-28 BOARD
SW-80 BOARD
VF-26 BOARD


CN101
CN101 (MALE) -EXTERNAL VIEW-
FILTER 1 IN
FILTER 2 IN
FILTER 3 IN
FILTER 4 IN
GAIN UP IND IN
CCIR/EIA IN
AUTO IND IN
TAPE IND 1 IN
TAPE IND 2 IN
MIC OUT (G)
ZEBRA/AUDIO IN/OUT
VF VIDEO IN
AUDIO CONT OUT
MIC OUT (Y)
MIC OUT (X)
BATT IND IN
REC/TALLY IN
+8.3V (VF) IN
GND
UNREG IN
MIC C-2011
MIC1
LP-28
"REC"
"BATT"
"5M"
"10M"
"GAIN UP"
TAPE
"4"
"3"
"2"
"1"
FILTER/AUDIO
TALLY
SW-80
TALLY/ZEBRA
OFF
ZEBRA
S101
S102
AUDIO
FILTER
RV103
AUDIO CONT
CN-127
+8.3V (VF) OUT
+8.3V (VF) IN
AUDIO CONT OUT
AUDIO CONT IN
VF-26
RV101
CONTR
CONTR OUT
CONTR IN
+8.3V (VF) IN
VF VIDEO IN
GND
+8.3V (VF) OUT
BRIGHT CONT IN
BRIGHT (GND)
RV102
BRIGHT
LED 5 CONT OUT
LED 4 CONT OUT
LED 3 CONT OUT
LED 2 CONT OUT
LED 1 CONT OUT
FILTER 1 IN
FILTER 2 IN
FILTER 3 IN
FILTER 4 IN
AUDO LEV EN IN
DC 7V OUT
DC 9V OUT
AUDIO ZEBRA IN
TALLY/ZEBRA IN
CCIR/EIA IN
Q18 DTC144WK
Q17 DTC144WK
Q15 DTC144WK
Q14 DTC144WK
SWITCH
IC2 LB1423N LED DRIVER
REFERENCE VOLTAGE
RV4:AUDIO LEVEL
TP5
TP1
E1
Q3 2SC1623 SOFT CLAMP
Q4 2SA812
Q5 2SA812 AMP
Q6 2SK94 PEAKING
Q7 2SA812 DC BAL
Q8 2SC2362K
Q9 2SC2757 AMP
Q10 2SC2362K
Q11 2SA1016K
K DRIVER
RV11:DC BALANCE
RV12:PEAKING LEVEL
Q2 2SC1623
FLIP-FLOP
Q1 2SC1623
S1 PEAKING
Q12 2SC1623
Q13 2SD1083L
H DRIVER
TP3
RV1:H SIZE
Q19 2SC1623 RIPPLE FILTER
IC1 HA11423NP (1/2)
Q23 2SA812 CCIR SW
AFC GATE
SYNC SEPARATE
X RAY TRIG
H OSC
H DRIVE
V TRIG
V OSC
V DRIVE
V BLKG
Vcc
RV5:H HOLD
RV9:V SIZE


VF-26
RV101 2k CONTR
CONTR OUT
CONTR IN
5-2 +9.3V (VF) IN
7-2 VF VIDEO IN
7-1 GND
1-4 +9.3V (VF) OUT
1-2 BRIGHT CONT IN
1-3 BRIGHT (GND)
RV102 250k
BRIGHT
6-7 LED 5 CONT OUT
6-5 LED 4 CONT OUT
6-4 LED 3 CONT OUT
6-3 LED 2 CONT OUT
6-2 LED 1 CONT OUT
5-3 FILTER 1 IN
5-4 FILTER 2 IN
5-6 FILTER 3 IN
5-5 FILTER 4 IN
6-10 AUDIO LEV EN IN
6-1 DC 7V OUT
6-6 DC 9V OUT
5-7 AUDIO ZEBRA IN
6-9 TALLY/ZEBRA IN
6-8 GND
5-1 CCIR/EIA IN
Q3 2SC1623 SOFT CLAMP
Q4 2SA812
Q5 2SA812 AMP
Q6 2SK94 PEAKING
Q7 2SA812 DC BAL
Q8 2SC2362K
Q9 2SC2757 AMP
Q10 2SC2362K
Q11 2SA1016K K DRIVER
Q2 2SC1623
Q1 2SC1623
FLIP-FLOP
S1 PEAKING
Q12 2SC1623
Q13 2SD1083L
H DRIVER
T1
T2 FLYBACK
Q25 2SA1163Q
Q24 2SA1163Q
CURRENT SET
TP1
TP2
TP3
TP4
TP5
E1
RV11: DC BALANCE
RV12: PEAKING LEVEL
RV1: H SIZE
RV10: SUB FOCUS
RV3: FOCUS
RV2: BRIGHT SET
H LINEARITY
Q18 DTC144WK
Q17 DTC144WK
Q15 DTC144WK
Q14 DTC144WK SWITCH
IC2 LB1423N LED DRIVER
REFERENCE VOLTAGE
Q19 2SC1623 RIPPLE FILTER
IC1 HA11423MP (1/2)
AFC GATE
SYNC SEPARATE
GND
Q23 2SA812 CCIR SW
IC1 (2/2) HA11423MP
X RAY TRIG
H OSC
H DRIVE
V TRIG
V OSC
V DRIVE
V BLKG
Vcc
Q20 2SC1623 AMP
Q21 2SC1623
Q22 2SA812
V DRIVER
RV4: AUDIO LEVEL
RV9: V SIZE
RV5: H HOLD
RV7: V HOLD
RV8: V SIZE
RV6: V LIN
HK OUT 2-2
H OUT 2-1
G1 OUT 2-3
ANODE OUT 4-1
G3 OUT 8-1
G2 OUT 8-3
GND 4-3
+H DEF OUT 3-1
-H DEF OUT 3-2
+V DEF OUT 3-4
-V DEF OUT 3-3
CRT SOCKET
MULTIPLIER
CRT
H
HK
G1
G2
G3
A
H. V DEFLECTION YOKE

*1 These components are specified as Safety Related Components for UC only.
これらの安全重要部品の指定はUC仕向けにのみ適用されます.

*2

REF. NO.	DESCRIPTION
C19	CHOICE { 0.0039 0.0043 0.0047 0.0051 0.0056 0.0062 0.0068 0.0075 0.0082
R90	ADD or OPEN

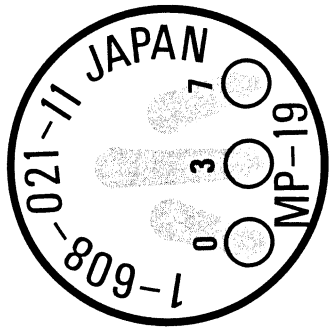
C18 : SELECTABLE PARTS DUE TO FLYBACK PULSE WITH ADJUSTMENTS.

T2 : IF YOU REPLACE THE T2 (FLYBACK TRANSFORMER) YOU MUST CARRY OUT FLYBACK PULSE WIDTH ADJUSTMENTS.

VIEWFINDER
VF-26 BOARD

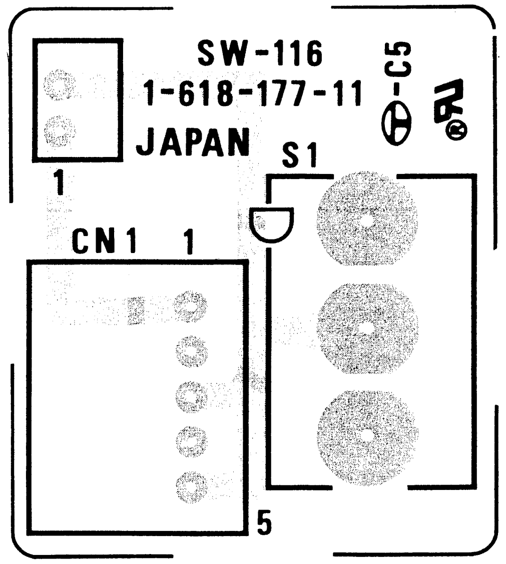
1-618-525-12
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

MP-19 BOARD


JAPAN
7
3
0
MP-19
1-608-021-11

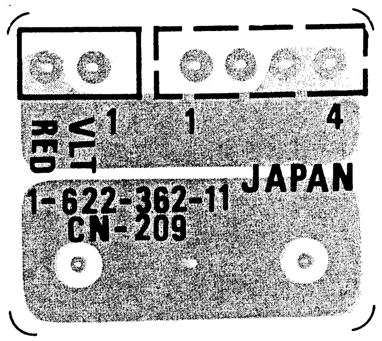
1-608-021-11 SOLDERING SIDE

SW-116 BOARD


SW-116
1-618-177-11
JAPAN
-C5
S1
1
CN1 1
5

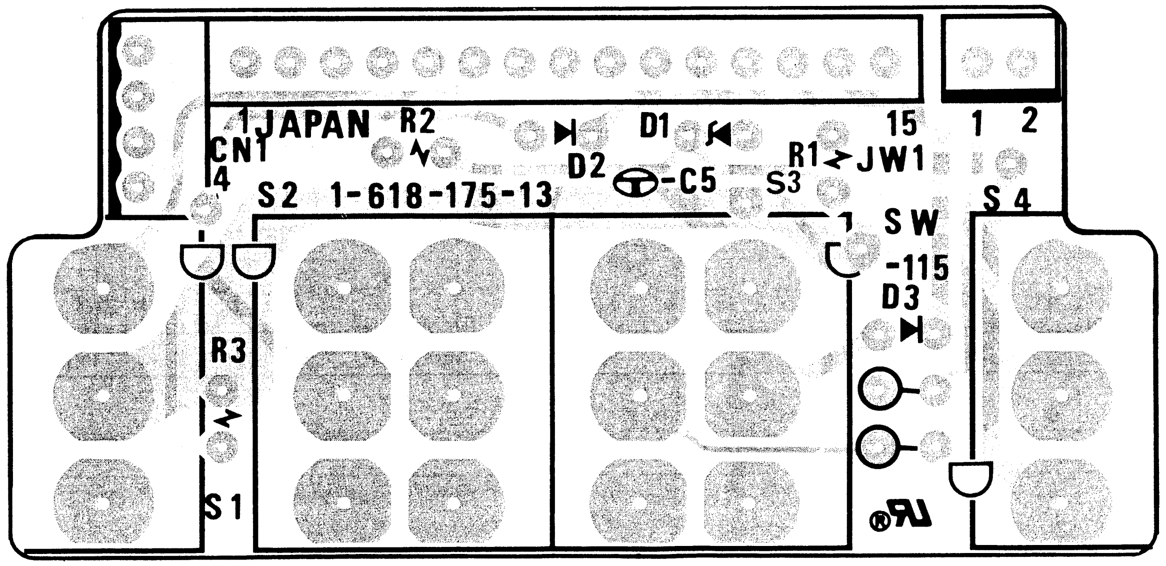
1-618-177-11 COMPONENT SIDE

CN-209 BOARD


RED
VLT
1
1
4
1-622-362-11
JAPAN
CN-209

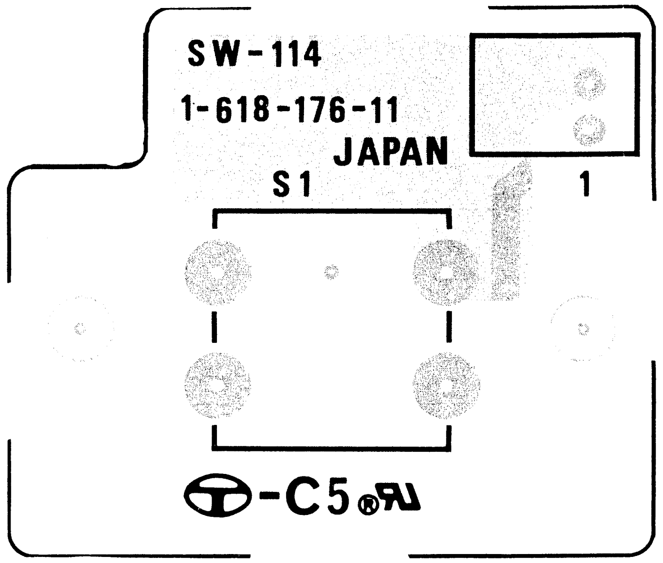
1-622-362-11 COMPONENT SIDE

SW-115A BOARD


1 JAPAN
R2
D1
15
1
2
CN1
4
D2
-C5
S3
R1
JW1
S2
1-618-175-13
S4
1
SW
-115
D3
R3
S1

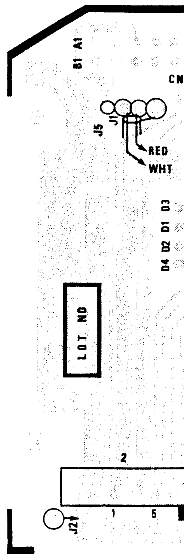
1-618-175-13 COMPONENT SIDE

SW-114 BOARD

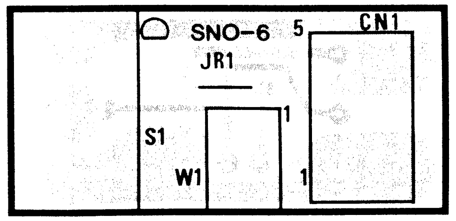

SW-114
1-618-176-11
JAPAN
S1
1
-C5

1-618-176-11 COMPONENT SIDE

HN-96 BO

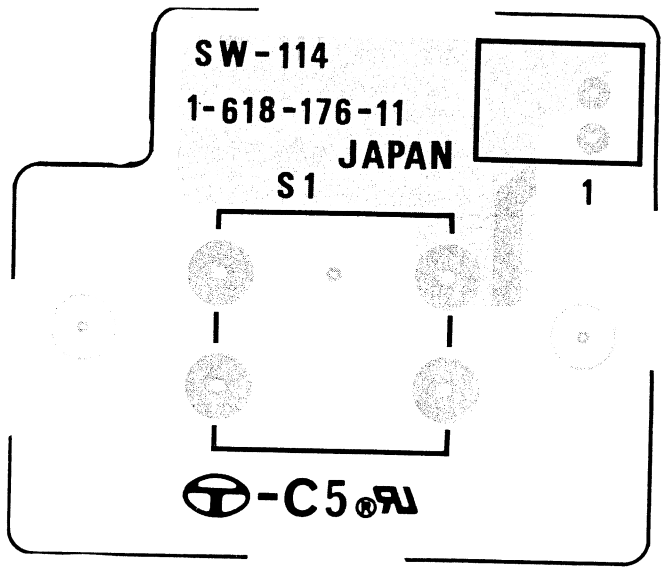

CN
J5
RED
WHT
LOT NO
2
1
5

SW-256 BOARD

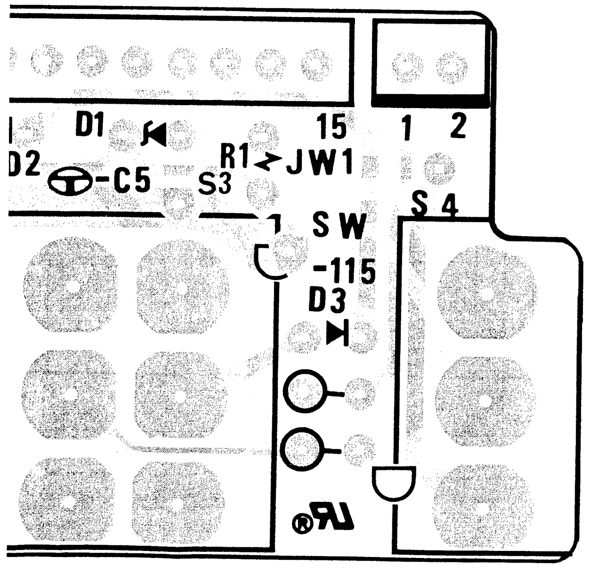

SNO-6
5
CN1
JR1
1
S1
W1
1

1-623-749-11 COMPONENT SIDE

SW-114 BOARD

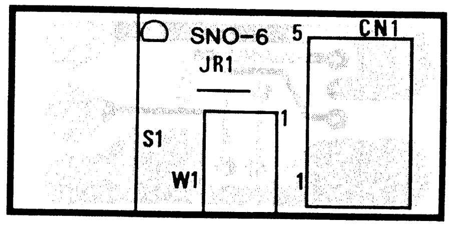

SW-114
1-618-176-11
JAPAN
S1
1
-C5

1-618-176-11 COMPONENT SIDE


D1
D2
-C5
S3
R1
JW1
15
1
2
SW
-115
S4
D3
1

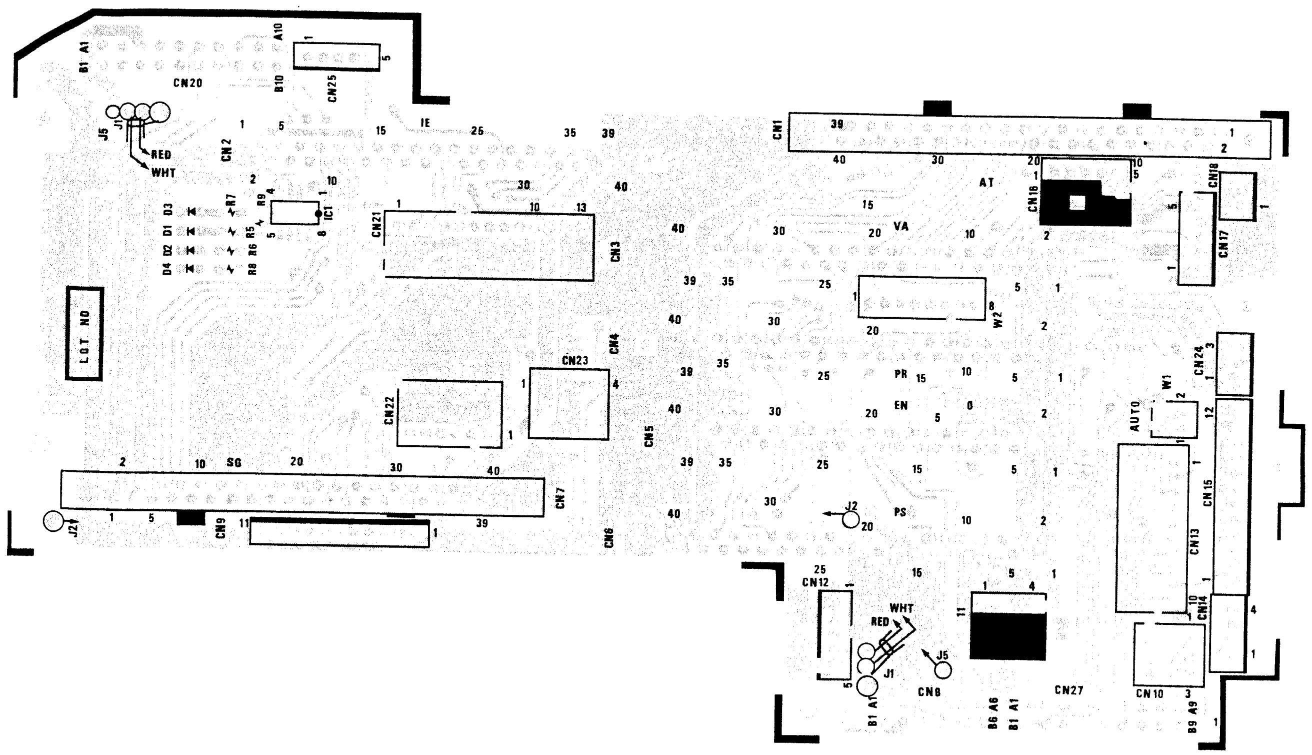
1-618-175-13 COMPONENT SIDE

SW-256 BOARD

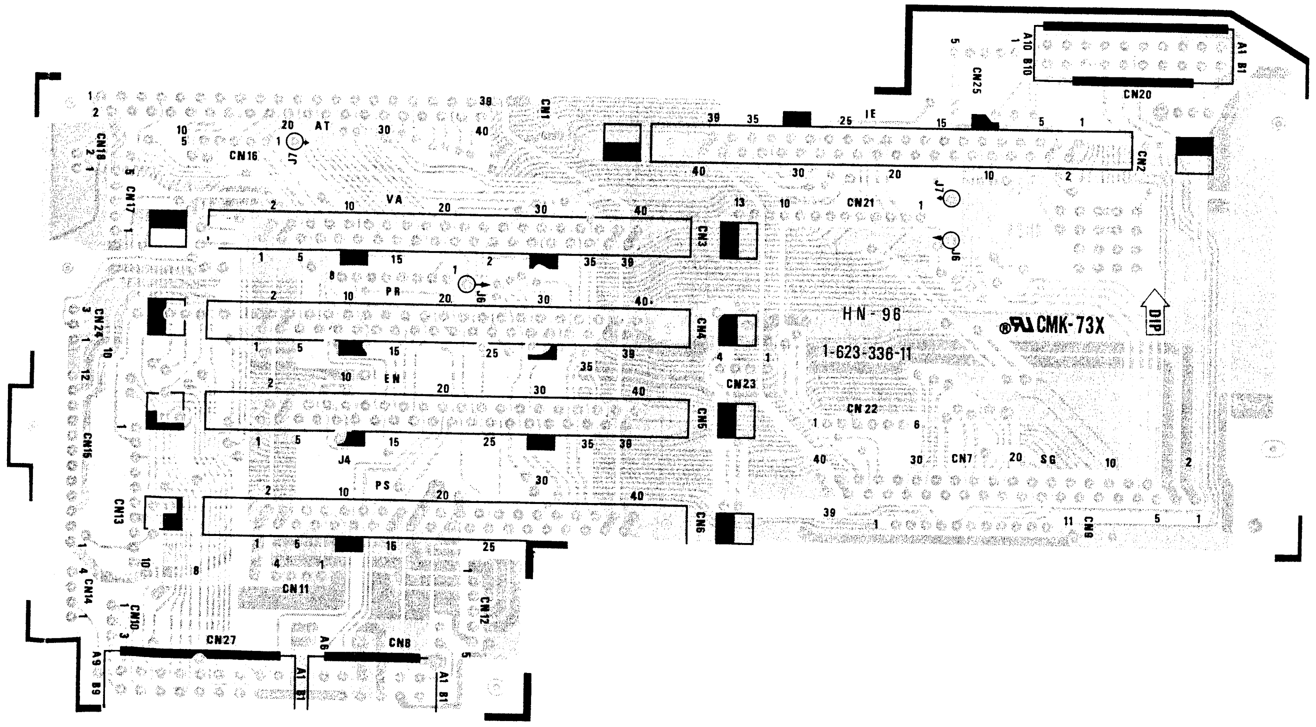

SNO-6
JR1
5
CN1
S1
W1
1
1

1-623-749-11 COMPONENT SIDE

HN-96 BOARD

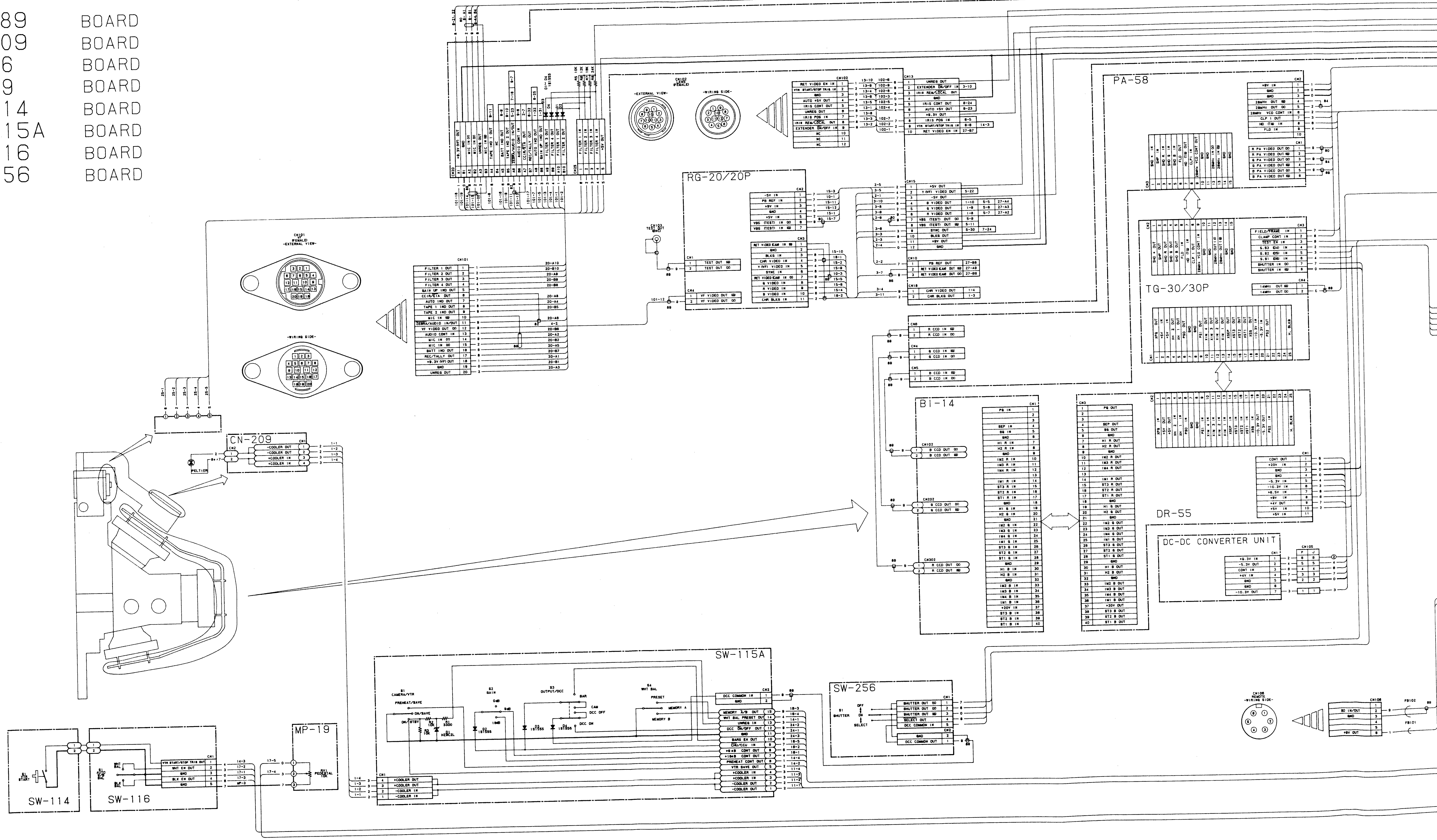

CN20
CN25
A10
B10
B1 A1
J5
RED
WHT
CN2
IC1
CN21
CN3
CN1
AT
CN16
CN18
CN17
VA
W2
LOT NO
CN23
CN4
CN22
CN5
PR
EN
W1
CN24
AUTO
SG
CN7
CN9
J7
J2
PS
CN8
CN15
CN13
CN14
CN12
J1
CN6
CN27
CN10

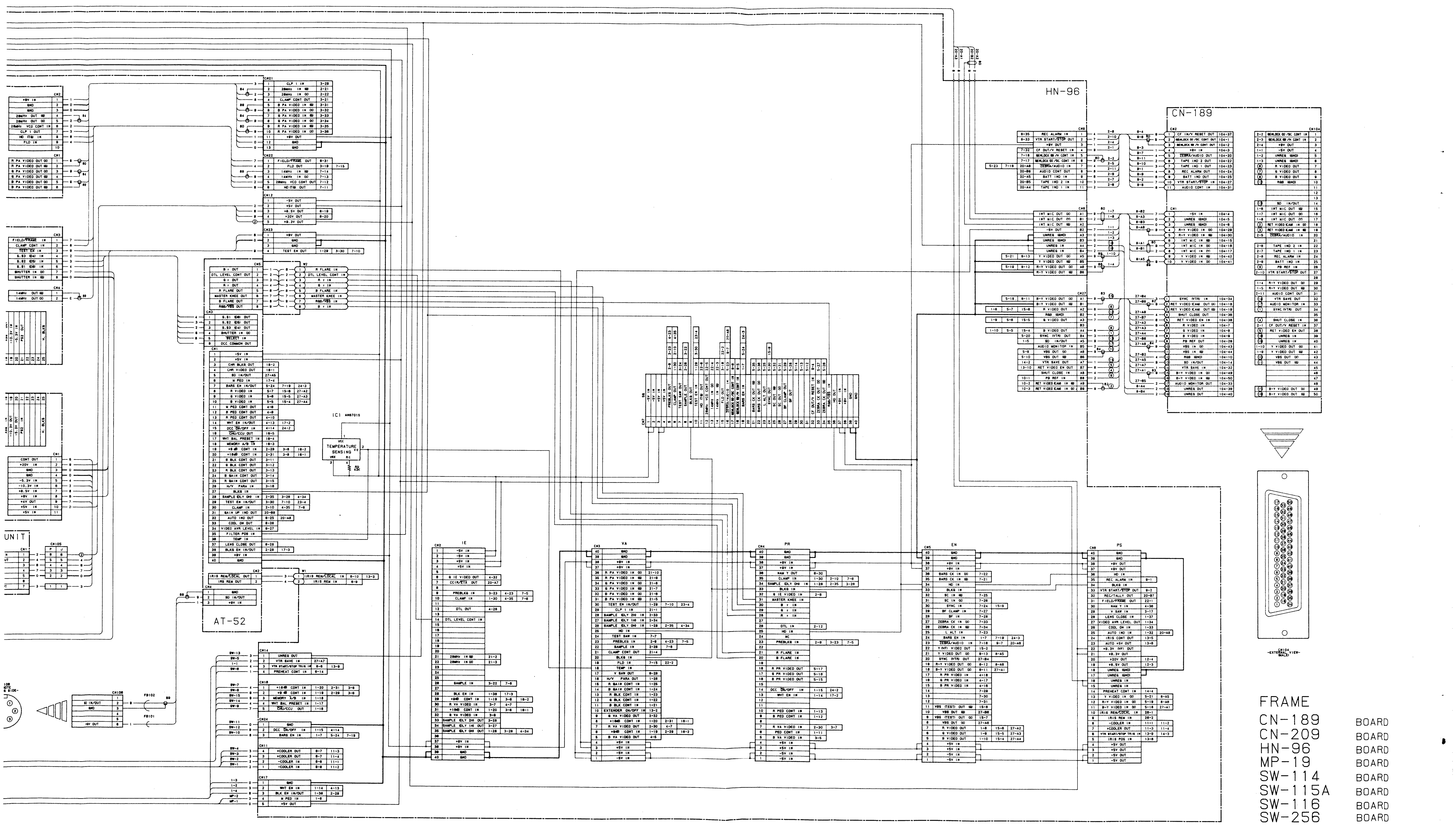
1-623-336-11 SOLDERING SIDE


HN-96
1-623-336-11
CMK-73X
DIP
CN20
CN25
CN1
CN2
CN16
J7
CN3
CN21
J6
CN4
CN23
CN22
CN5
CN7
SG
CN6
CN8
J4
CN11
CN27
CN10
CN12
CN14
CN13
CN15
CN24
CN17
CN18
AT
VA
PR
EN
PS

1-623-336-11 COMPONENT SIDE

FRAME
CN-189 BOARD
CN-209 BOARD
HN-96 BOARD
MP-19 BOARD
SW-114 BOARD
SW-115A BOARD
SW-116 BOARD
SW-256 BOARD

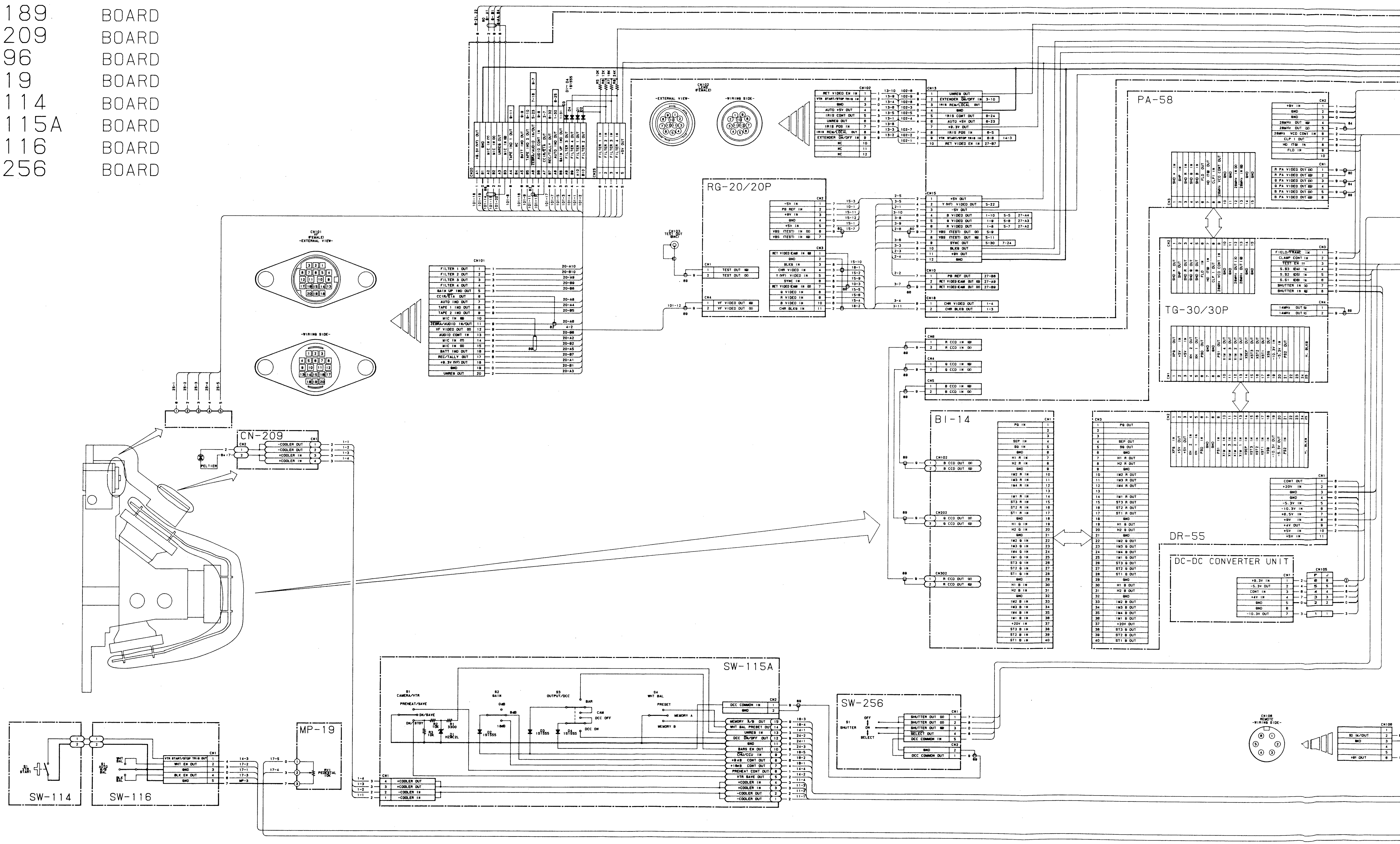

PA-58
RG-20/20P
TG-30/30P
BI-14
DR-55
DC-DC CONVERTER UNIT
CN-209
PELTIER
SW-115A
SW-256
MP-19
SW-114
SW-116


HN-96
CN-189
AT-52
UNIT
IC1 AN6701S
TEMPERATURE SENSING
IE
VA
PR
EN
PS
CN104
-EXTERNAL VIEW-
(MALE)

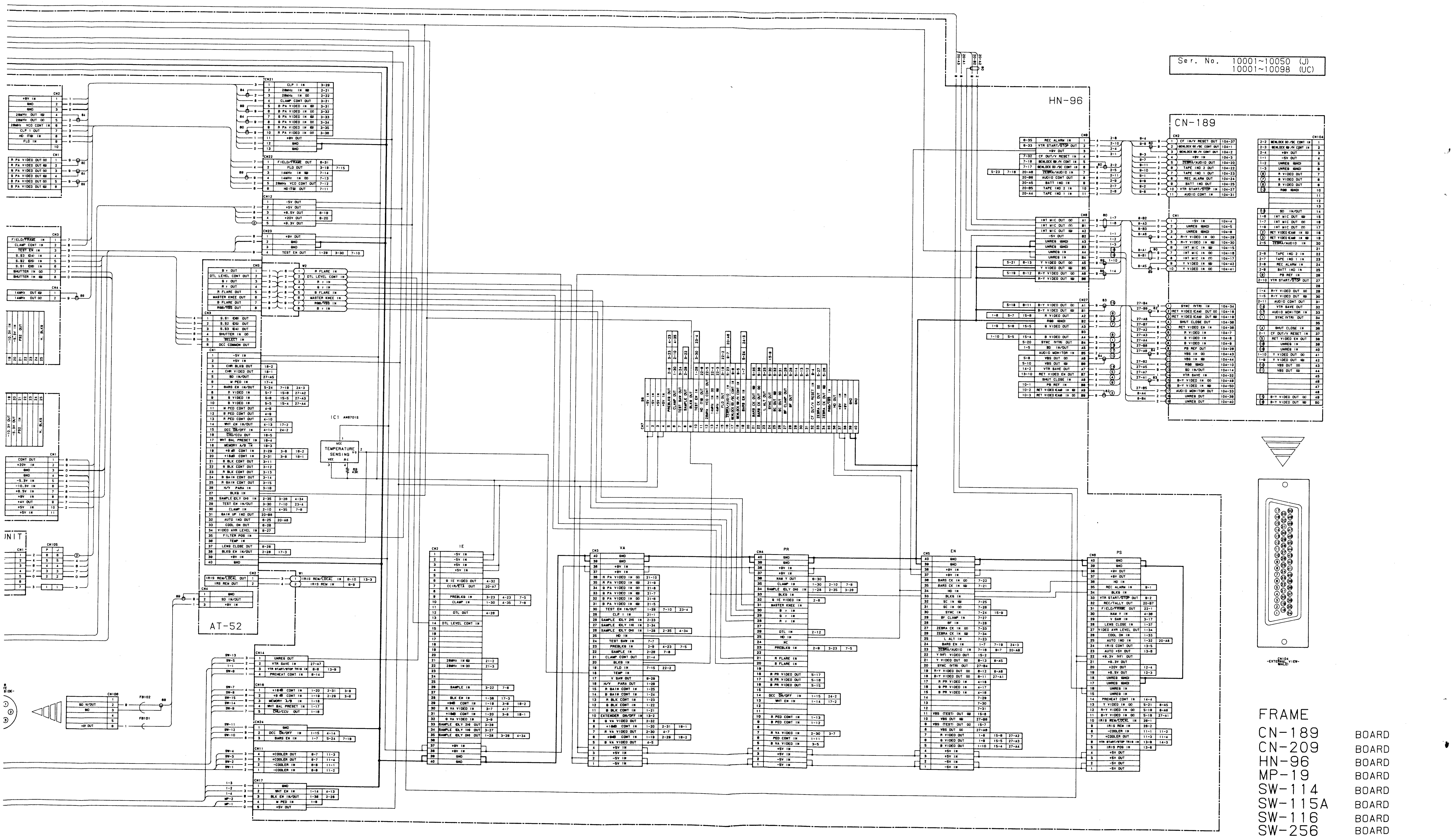
FRAME
CN-189 BOARD
CN-209 BOARD
HN-96 BOARD
MP-19 BOARD
SW-114 BOARD
SW-115A BOARD
SW-116 BOARD
SW-256 BOARD
BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

FRAME

CN-189	BOARD
CN-209	BOARD
HN-96	BOARD
MP-19	BOARD
SW-114	BOARD
SW-115A	BOARD
SW-116	BOARD
SW-256	BOARD


PA-58
RG-20/20P
TG-30/30P
BI-14
DR-55
DC-DC CONVERTER UNIT
CN-209
SW-115A
SW-256
MP-19
SW-114
SW-116
PELTIER

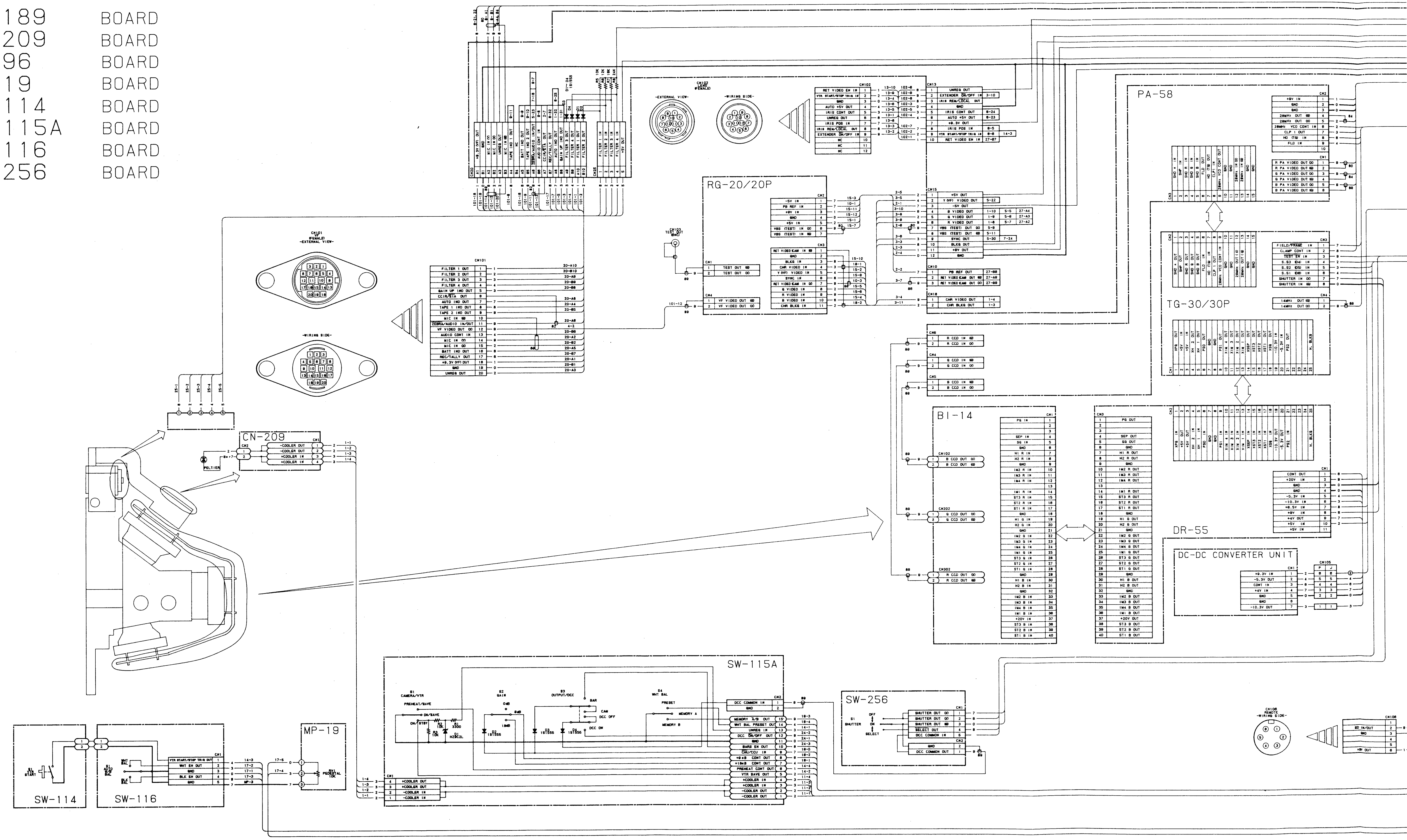
Ser. No. 10001~10050 (J)
10001~10098 (UC)


HN-96
CN-189
AT-52
IC1 AN6701S
TEMPERATURE SENSING
IE
VA
PR
EN
PS
UNIT
CN104 -EXTERNAL VIEW- (MALE)

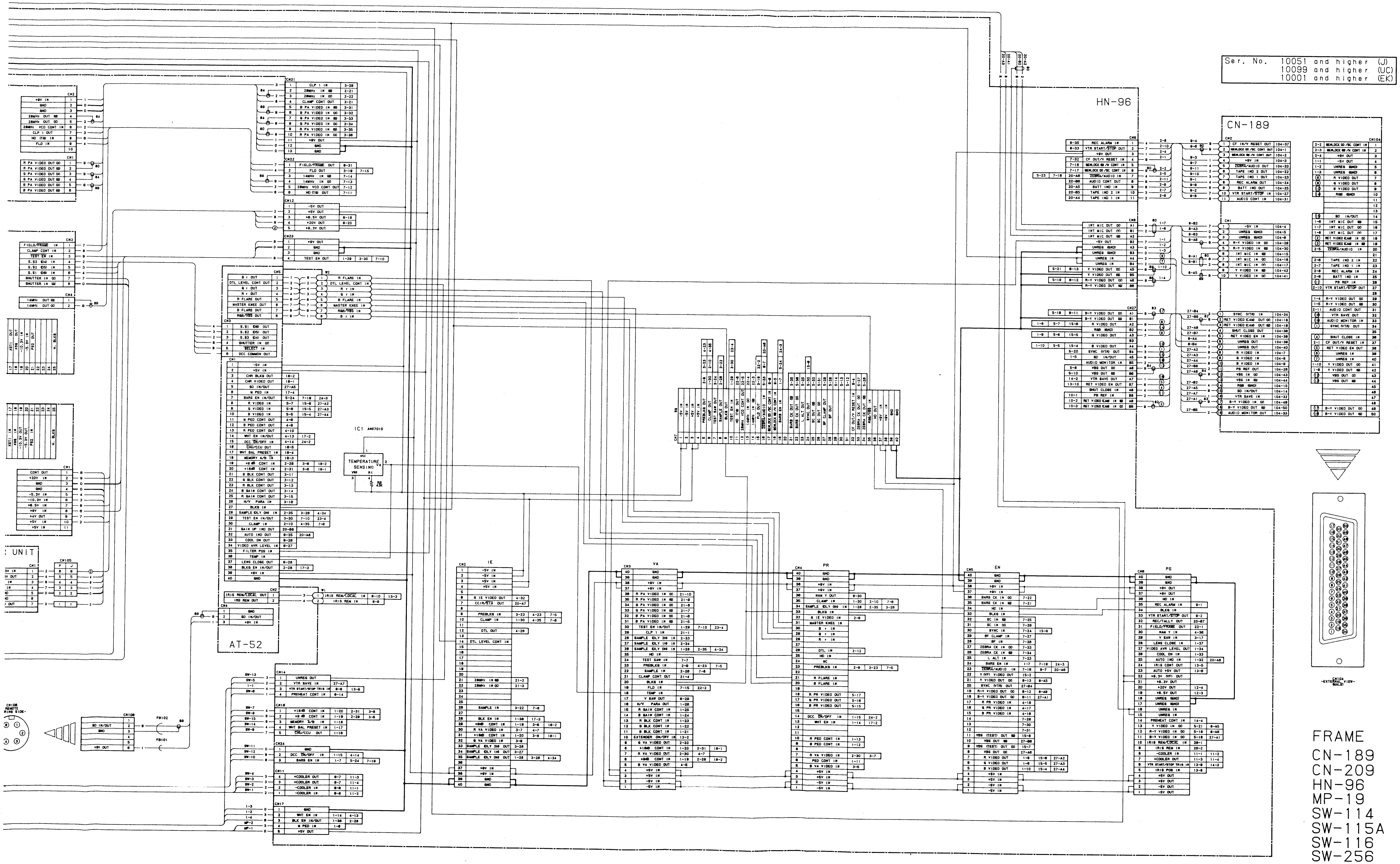
FRAME
CN-189 BOARD
CN-209 BOARD
HN-96 BOARD
MP-19 BOARD
SW-114 BOARD
SW-115A BOARD
SW-116 BOARD
SW-256 BOARD

BVP-50 (J, UC) 10001~
BVP-50P (EK) 10001~

FRAME
CN-189 BOARD
CN-209 BOARD
HN-96 BOARD
MP-19 BOARD
SW-114 BOARD
SW-115A BOARD
SW-116 BOARD
SW-256 BOARD


CN102
-EXTERNAL VIEW-
-WIRING SIDE-
CN101
-EXTERNAL VIEW-
-WIRING SIDE-
RG-20/20P
PA-58
TG-30/30P
BI-14
DR-55
DC-DC CONVERTER UNIT
CN-209
PELTIER
SW-115A
S1 CAMERA/VTR
S2 GAIN
S3 OUTPUT/DCC
S4 WHT BAL
PRESET
MEMORY A
MEMORY B
BAR
CAM
DCC OFF
DCC ON
SW-256
S1 SHUTTER
OFF
ON
SELECT
MP-19
SW-114
S1 VTR START
SW-116
S1 AUTO WHT BAL
CN106 REMOTE -WIRING SIDE-

Ser. No.		
	10051 and higher	(J)
	10099 and higher	(UC)
	10001 and higher	(EK)


HN-96
CN-189
AT-52
IC1 AN6701S
TEMPERATURE SENSING
UNIT
IE
VA
PR
EN
PS
CN106 REMOTE
FB101
FB102
CN104 EXTERNAL VIEW

FRAME
CN-189 BOARD
CN-209 BOARD
HN-96 BOARD
MP-19 BOARD
SW-114 BOARD
SW-115A BOARD
SW-116 BOARD
SW-256 BOARD

BVP-50 (J) 10051~
BVP-50 (UC) 10099~
BVP-50P (EK) 10001~

SECTION 8
SPARE PARTS

8-1. PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with ! on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "**accommodating the improved parts and/or engineering changes**" or "**standardization of genuine parts**". This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer SECTION 9. CHANGE INFORMATION.

3. **The parts marked with "S" in the SP column** of the exploded views and electical spare parts list are nomally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

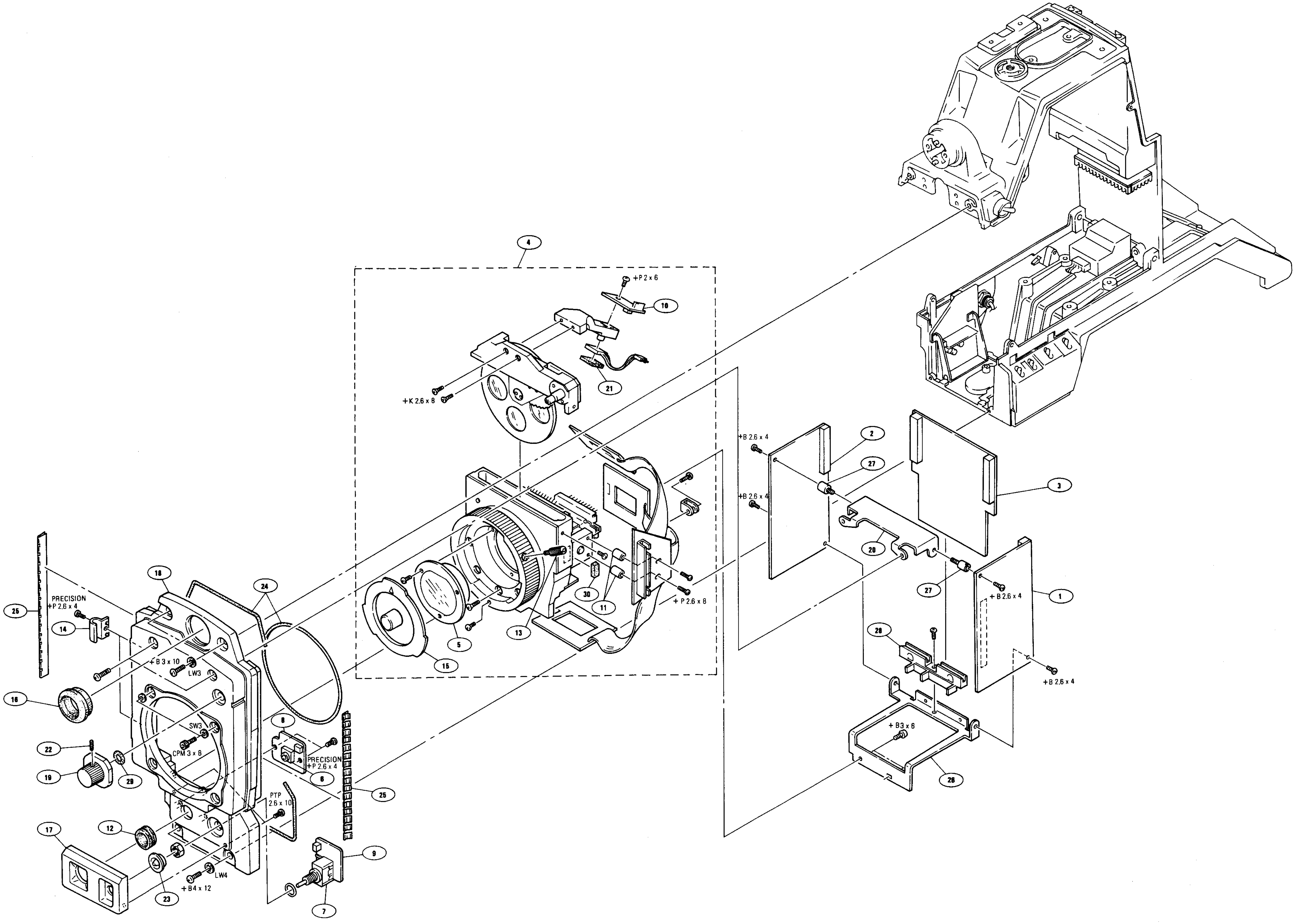
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. **Abbreviation**

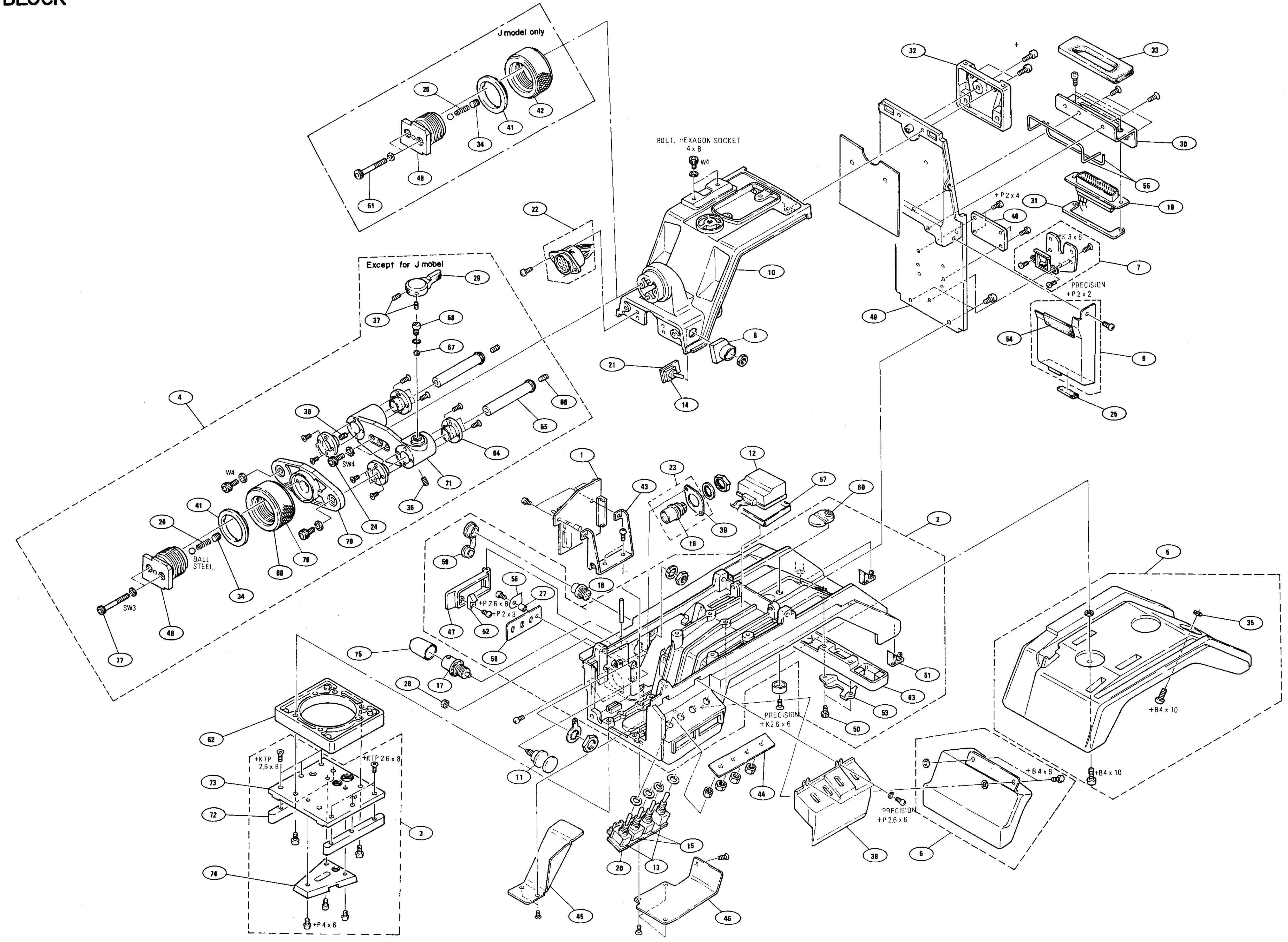
REF.No.	DESCRIPTION	REF.No.	DESCRIPTION	REF.No.	DESCRIPTION
BT	BATTERY	**FL**	FILTER	**RV**	VARIABLE RESISTOR
C	CAPACITOR	**IC**	IC	**S**	SWITCH
CN	CONNECTOR	**L**	INDUCTOR	**T**	TRANSFORMER
CP	COMBINATION PARTS	**LV**	VARIABLE INDUCTOR	**TH**	THERMISTOR
CV	VARIABLE CAPACITOR	**Q**	TRANSISTOR	**X**	OSCILLATOR
D	DIODE	**R**	RESISTOR		
DL	DELAY LINE	**RB**	RESISTOR BLOCK		

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

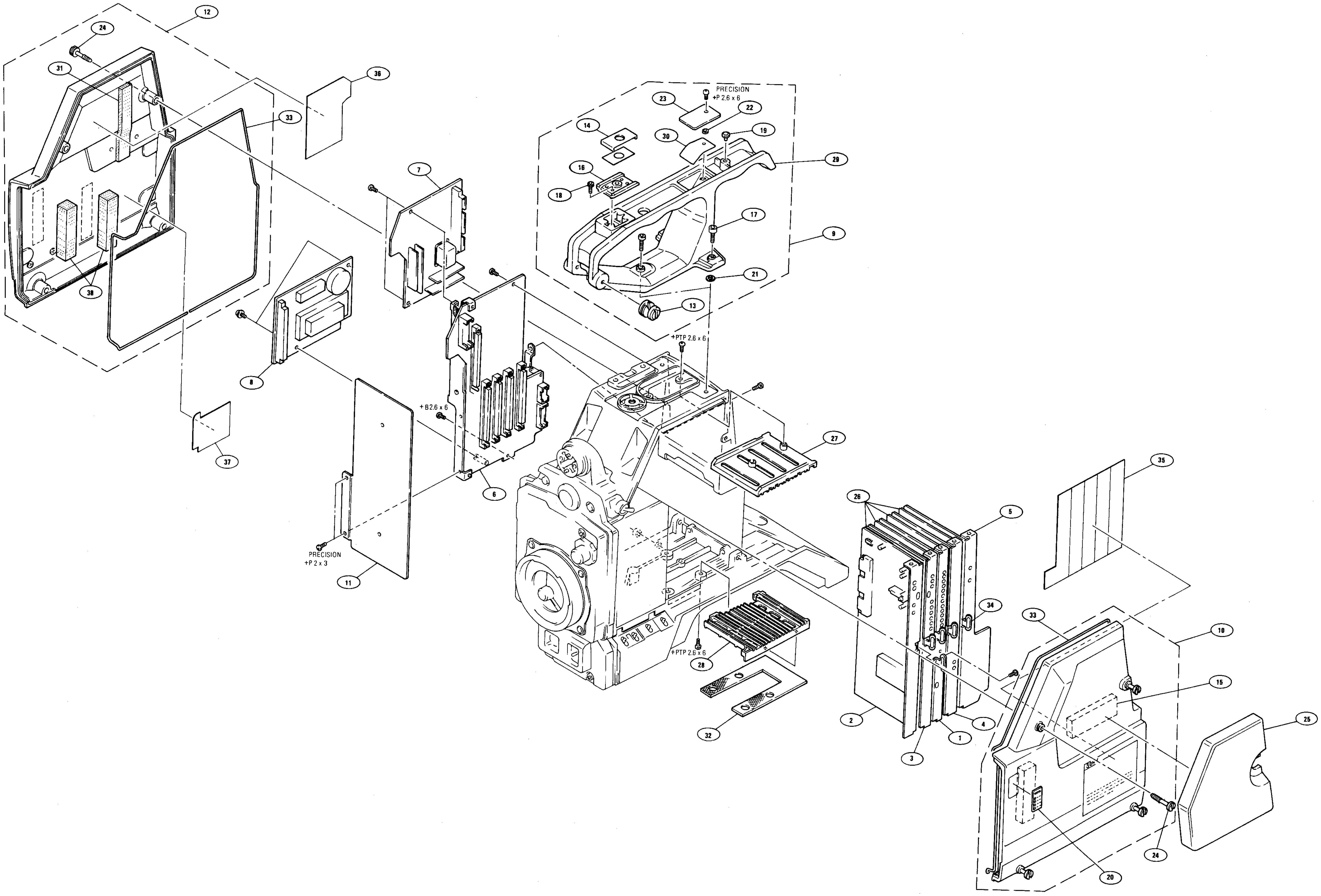
FRONT ASSY


+P2x6
+K2.6x8
+B2.6x4
+B2.6x4
+P2.6x8
+B2.6x4
+B2.6x4
+B3x6
PRECISION
+P2.6x4
+B3x10
LW3
SW3
CPM3x8
PRECISION
+P2.6x4
PTP
2.6x10
+B4x12
LW4

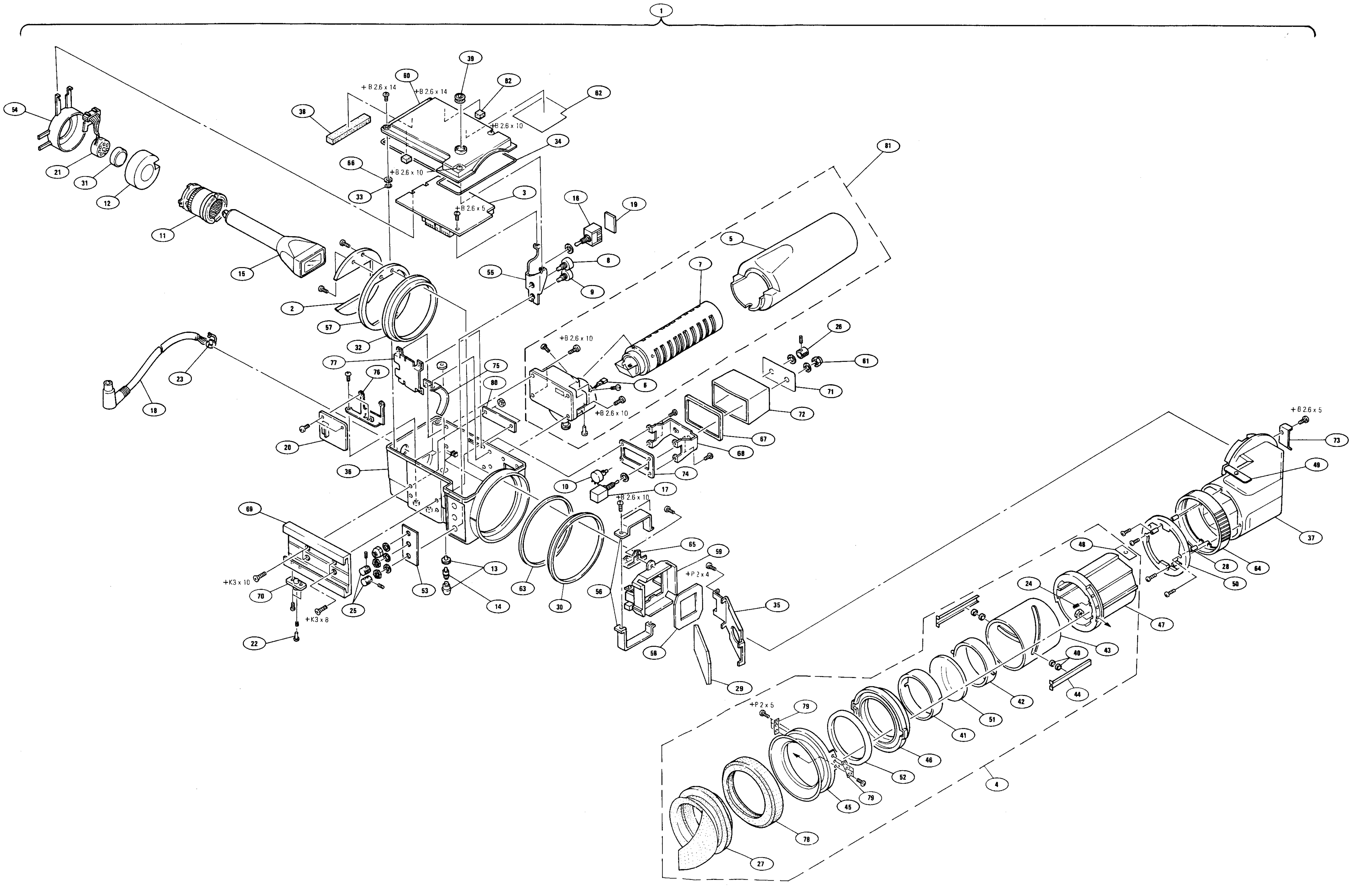
CHASSIS BLOCK


J model only
26
34
41
42
48
61
Except for J mobel
29
37
68
67
66
65
64
71
36
24
70
76
69
41
26
BALL STEEL
34
48
SW3
77
W4
SW4
4
22
BOLT, HEXAGON SOCKET
4 x 8
W4
10
8
21
14
32
33
30
55
19
31
+P 2 x 4
40
+K 3 x 6
7
PRECISION
+P 2 x 2
49
54
9
25
1
43
23
12
57
60
39
18
2
16
59
56
+P 2.6 x 8
+P 2 x 3
27
47
52
58
75
17
28
62
+KTP 2.6 x 8
+KTP 2.6 x 8
73
72
3
74
+P 4 x 6
11
51
63
53
50
PRECISION
+K2.6 x 6
44
15
13
20
45
46
38
PRECISION
+P 2.6 x 6
5
35
+B4 x 10
+B4 x 10
+B 4 x 6
6

BOARD BLOCK


+B2.6 x 6
PRECISION
+P 2 x 3
PRECISION
+P 2.6 x 6
+PTP 2.6 x 6
+PTP 2.6 x 6

VIEWFINDER


+B 2.6 x 14
+B 2.6 x 14
+B 2.6 x 10
+B 2.6 x 10
+B 2.6 x 5
+B 2.6 x 10
+B 2.6 x 10
+B 2.6 x 10
+K3 x 10
+K3 x 8
+P 2 x 4
+B 2.6 x 5
+P 2 x 5

8-5. ELECTRICAL PARTS

CAPACITOR, ELECTROLYTIC

0.1 - 100 (E3 + 33 series) 6.3V - 50V

Part No.	SP	Description
1-124-463-11	s	CAP, ELECT 0.1 20% 50V
1-124-464-11	s	CAP, ELECT 0.22 20% 50V
1-124-252-11	s	CAP, ELECT 0.33 20% 50V
1-124-465-21	s	CAP, ELECT 0.47 20% 50V
1-124-438-11	s	CAP, ELECT 1.0 20% 50V
1-124-257-11	s	CAP, ELECT 2.2 20% 50V
1-124-258-11	s	CAP, ELECT 3.3 20% 50V
1-124-245-11	s	CAP, ELECT 4.7 20% 35V
1-124-259-11	s	CAP, ELECT 4.7 20% 50V
1-124-462-11	s	CAP, ELECT 10 20% 16V
1-124-247-11	s	CAP, ELECT 10 20% 35V
1-124-261-11	s	CAP, ELECT 10 20% 50V
1-124-222-11	s	CAP, ELECT 22 20% 6.3V
1-124-234-11	s	CAP, ELECT 22 20% 16V
1-124-248-11	s	CAP, ELECT 22 20% 35V
1-124-431-11	s	CAP, ELECT 33 20% 4V
1-124-229-11	s	CAP, ELECT 33 20% 10V
1-124-242-11	s	CAP, ELECT 33 20% 25V
1-124-224-11	s	CAP, ELECT 47 20% 6.3V
1-124-236-11	s	CAP, ELECT 47 20% 16V
1-124-584-11	s	CAP, ELECT 100 20% 10V

CAPACITOR, TANTALUM

0.01 - 100 (E6) 3.15V - 35V

Part No.	SP	Description
1-131-396-11	s	CAP, TANTALUM 0.01 20% 35V
1-131-397-11	s	CAP, TANTALUM 0.015 20% 35V
1-131-398-11	s	CAP, TANTALUM 0.022 20% 35V
1-131-399-11	s	CAP, TANTALUM 0.033 20% 35V
1-131-400-11	s	CAP, TANTALUM 0.047 20% 35V
1-131-401-21	s	CAP, TANTALUM 0.068 10% 35V
1-131-341-21	s	CAP, TANTALUM 0.1 10% 35V
1-131-342-21	s	CAP, TANTALUM 0.15 10% 35V
1-131-343-21	s	CAP, TANTALUM 0.22 10% 35V
1-131-344-21	s	CAP, TANTALUM 0.33 10% 35V
1-131-412-11	s	CAP, TANTALUM 0.47 20% 20V
1-131-345-21	s	CAP, TANTALUM 0.47 10% 35V
1-131-410-11	s	CAP, TANTALUM 0.68 20% 25V
1-131-346-21	s	CAP, TANTALUM 0.68 10% 35V
1-131-413-11	s	CAP, TANTALUM 1.0 20% 20V
1-131-347-21	s	CAP, TANTALUM 1.0 10% 35V
1-131-416-11	s	CAP, TANTALUM 1.5 20% 16V
1-131-348-21	s	CAP, TANTALUM 1.5 10% 35V
1-131-419-11	s	CAP, TANTALUM 2.2 20% 10V
1-131-361-21	s	CAP, TANTALUM 2.2 10% 20V
1-131-349-21	s	CAP, TANTALUM 2.2 10% 35V
1-131-422-11	s	CAP, TANTALUM 3.3 20% 6.3V
1-131-368-21	s	CAP, TANTALUM 3.3 10% 16V
1-131-356-21	s	CAP, TANTALUM 3.3 10% 25V
1-131-350-21	s	CAP, TANTALUM 3.3 10% 35V
1-131-425-11	s	CAP, TANTALUM 4.7 20% 3.15V
1-131-375-21	s	CAP, TANTALUM 4.7 10% 10V
1-131-363-21	s	CAP, TANTALUM 4.7 10% 20V
1-131-351-21	s	CAP, TANTALUM 4.7 10% 35V
1-131-382-21	s	CAP, TANTALUM 6.8 10% 6.3V
1-131-370-21	s	CAP, TANTALUM 6.8 10% 16V
1-131-358-21	s	CAP, TANTALUM 6.8 10% 25V
1-131-352-21	s	CAP, TANTALUM 6.8 10% 35V
1-131-389-21	s	CAP, TANTALUM 10 10% 3.15V
1-131-377-21	s	CAP, TANTALUM 10 10% 10V
1-131-365-21	s	CAP, TANTALUM 10 10% 20V
1-131-353-21	s	CAP, TANTALUM 10 10% 35V
1-131-384-21	s	CAP, TANTALUM 15 10% 6.3V
1-131-372-21	s	CAP, TANTALUM 15 10% 16V
1-131-360-21	s	CAP, TANTALUM 15 10% 25V
1-131-391-21	s	CAP, TANTALUM 22 10% 3.15V
1-131-379-21	s	CAP, TANTALUM 22 10% 10V
1-131-367-21	s	CAP, TANTALUM 22 10% 20V
1-131-386-21	s	CAP, TANTALUM 33 10% 6.3V
1-131-374-21	s	CAP, TANTALUM 33 10% 16V
1-131-393-21	s	CAP, TANTALUM 47 10% 3.15V
1-131-381-21	s	CAP, TANTALUM 47 10% 10V
1-131-388-21	s	CAP, TANTALUM 68 10% 6.3V
1-131-395-21	s	CAP, TANTALUM 100 10% 3.15V

CAPACITOR, CHIP CERAMIC

1pF - 4pF CH ±0.25pF 50V
6pF - 8pF CH ±0.5pF 50V
10pF - 1000pF CH ±5% 50V
1500pF - 6800pF B ±10% 50V
0.01uF - 0.015μF B ±10% 50V
0.033uF - 0.047μF F +80/-20% 50V
0.068uF - 0.1μF F +80/-20% 25V

Part No.	SP	Description
1-163-083-00	s	CAP, CHIP CERAMIC 1pF±0.25pF 50V
1-163-085-00	s	CAP, CHIP CERAMIC 2pF±0.25pF 50V
1-163-087-00	s	CAP, CHIP CERAMIC 4pF±0.25pF 50V
1-163-089-00	s	CAP, CHIP CERAMIC 6pF±0.5pF 50V
1-163-091-00	s	CAP, CHIP CERAMIC 8pF±0.5pF 50V
1-163-093-00	s	CAP, CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CAP, CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CAP, CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CAP, CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CAP, CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CAP, CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CAP, CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CAP, CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CAP, CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CAP, CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CAP, CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CAP, CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CAP, CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CAP, CHIP CERAMIC 1500pF 10% 50V
1-163-013-00	s	CAP, CHIP CERAMIC 2200pF 10% 50V
1-163-015-00	s	CAP, CHIP CERAMIC 3300pF 10% 50V
1-163-017-00	s	CAP, CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CAP, CHIP CERAMIC 6800pF 10% 50V
1-163-021-00	s	CAP, CHIP CERAMIC 0.01 10% 50V
1-163-023-00	s	CAP, CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CAP, CHIP CERAMIC 0.033 50V
1-163-035-00	s	CAP, CHIP CERAMIC 0.047 50V
1-163-036-00	s	CAP, CHIP CERAMIC 0.068 50V
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 50V

RESISTOR, METAL

1/8W
10 - 100k (E24) 1/8W

Part No.	SP	Description
1-214-509-00	s	RES, METAL 10 1% 1/8W
1-214-510-00	s	RES, METAL 11 1% 1/8W
1-214-511-00	s	RES, METAL 12 1% 1/8W
1-214-512-00	s	RES, METAL 13 1% 1/8W
1-214-513-00	s	RES, METAL 15 1% 1/8W
1-214-514-00	s	RES, METAL 16 1% 1/8W
1-214-515-00	s	RES, METAL 18 1% 1/8W
1-214-516-00	s	RES, METAL 20 1% 1/8W
1-214-517-00	s	RES, METAL 22 1% 1/8W
1-214-518-00	s	RES, METAL 24 1% 1/8W
1-214-519-00	s	RES, METAL 27 1% 1/8W
1-214-520-00	s	RES, METAL 30 1% 1/8W
1-214-521-00	s	RES, METAL 33 1% 1/8W
1-214-522-00	s	RES, METAL 36 1% 1/8W
1-214-523-00	s	RES, METAL 39 1% 1/8W
1-214-524-00	s	RES, METAL 43 1% 1/8W
1-214-525-00	s	RES, METAL 47 1% 1/8W
1-214-526-00	s	RES, METAL 51 1% 1/8W
1-214-527-00	s	RES, METAL 56 1% 1/8W
1-214-528-00	s	RES, METAL 62 1% 1/8W
1-214-529-00	s	RES, METAL 68 1% 1/8W
1-214-530-00	s	RES, METAL 75 1% 1/8W
1-214-531-00	s	RES, METAL 82 1% 1/8W
1-214-532-00	s	RES, METAL 91 1% 1/8W
1-214-533-00	s	RES, METAL 100 1% 1/8W
1-214-534-00	s	RES, METAL 110 1% 1/8W
1-214-535-00	s	RES, METAL 120 1% 1/8W
1-214-536-00	s	RES, METAL 130 1% 1/8W
1-214-537-00	s	RES, METAL 150 1% 1/8W
1-214-538-00	s	RES, METAL 160 1% 1/8W
1-214-539-00	s	RES, METAL 180 1% 1/8W
1-214-540-00	s	RES, METAL 200 1% 1/8W
1-214-541-00	s	RES, METAL 220 1% 1/8W
1-214-542-00	s	RES, METAL 240 1% 1/8W
1-214-543-00	s	RES, METAL 270 1% 1/8W
1-214-544-00	s	RES, METAL 300 1% 1/8W
1-214-545-00	s	RES, METAL 330 1% 1/8W
1-214-546-00	s	RES, METAL 360 1% 1/8W
1-214-547-00	s	RES, METAL 390 1% 1/8W
1-214-548-00	s	RES, METAL 430 1% 1/8W
1-214-549-00	s	RES, METAL 470 1% 1/8W
1-214-550-00	s	RES, METAL 510 1% 1/8W
1-214-551-00	s	RES, METAL 560 1% 1/8W
1-214-552-00	s	RES, METAL 620 1% 1/8W
1-214-553-00	s	RES, METAL 680 1% 1/8W
1-214-554-00	s	RES, METAL 750 1% 1/8W
1-214-555-00	s	RES, METAL 820 1% 1/8W
1-214-556-00	s	RES, METAL 910 1% 1/8W
1-214-557-00	s	RES, METAL 1.0k 1% 1/8W
1-214-558-00	s	RES, METAL 1.1k 1% 1/8W
1-214-559-00	s	RES, METAL 1.2k 1% 1/8W
1-214-560-00	s	RES, METAL 1.3k 1% 1/8W
1-214-561-00	s	RES, METAL 1.5k 1% 1/8W
1-214-562-00	s	RES, METAL 1.6k 1% 1/8W
1-214-563-00	s	RES, METAL 1.8k 1% 1/8W
1-214-564-00	s	RES, METAL 2.0k 1% 1/8W
1-214-565-00	s	RES, METAL 2.2k 1% 1/8W
1-214-566-00	s	RES, METAL 2.4k 1% 1/8W
1-214-567-00	s	RES, METAL 2.7k 1% 1/8W
1-214-568-00	s	RES, METAL 3.0k 1% 1/8W
1-214-569-00	s	RES, METAL 3.3k 1% 1/8W
1-214-570-00	s	RES, METAL 3.6k 1% 1/8W
1-214-571-00	s	RES, METAL 3.9k 1% 1/8W
1-214-572-00	s	RES, METAL 4.3k 1% 1/8W
1-214-573-00	s	RES, METAL 4.7k 1% 1/8W
1-214-574-00	s	RES, METAL 5.1k 1% 1/8W
1-214-575-00	s	RES, METAL 5.6k 1% 1/8W
1-214-576-00	s	RES, METAL 6.2k 1% 1/8W
1-214-577-00	s	RES, METAL 6.8k 1% 1/8W
1-214-578-00	s	RES, METAL 7.5k 1% 1/8W
1-214-579-00	s	RES, METAL 8.2k 1% 1/8W
1-214-580-00	s	RES, METAL 9.1k 1% 1/8W
1-214-581-00	s	RES, METAL 10k 1% 1/8W
1-214-582-00	s	RES, METAL 11k 1% 1/8W
1-214-583-00	s	RES, METAL 12k 1% 1/8W
1-214-584-00	s	RES, METAL 13k 1% 1/8W
1-214-585-00	s	RES, METAL 15k 1% 1/8W
1-214-586-00	s	RES, METAL 16k 1% 1/8W
1-214-587-00	s	RES, METAL 18k 1% 1/8W
1-214-588-00	s	RES, METAL 20k 1% 1/8W
1-214-589-00	s	RES, METAL 22k 1% 1/8W
1-214-590-00	s	RES, METAL 24k 1% 1/8W
1-214-591-00	s	RES, METAL 27k 1% 1/8W
1-214-592-00	s	RES, METAL 30k 1% 1/8W
1-214-593-00	s	RES, METAL 33k 1% 1/8W
1-215-819-11	s	RES, METAL 36k 1% 1/8W
1-215-820-11	s	RES, METAL 39k 1% 1/8W
1-215-821-11	s	RES, METAL 43k 1% 1/8W
1-215-822-11	s	RES, METAL 47k 1% 1/8W
1-215-823-11	s	RES, METAL 51k 1% 1/8W
1-215-824-11	s	RES, METAL 56k 1% 1/8W
1-215-825-11	s	RES, METAL 62k 1% 1/8W
1-215-826-11	s	RES, METAL 68k 1% 1/8W
1-215-827-11	s	RES, METAL 75k 1% 1/8W
1-215-828-11	s	RES, METAL 82k 1% 1/8W
1-215-829-11	s	RES, METAL 91k 1% 1/8W
1-215-830-11	s	RES, METAL 100k 1% 1/8W

RESISTOR, CHIP

1/10W
0 - 3.3M (E12) ±5% 1/10W

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-00	s	RES, CHIP 3.3 5% 1/10W
1-216-306-00	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-00	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-087-00	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-00	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-00	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-00	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

CONNECTOR, RECEPTACLE (STRAIGHT TYPE)
CONNECTOR, RECEPTACLE (ANGLE TYPE)
CONNECTOR, HOUSING
CONNECTOR, CONTACT AWG24-30/AWG32

2P - 15P

Part No.	SP	Description
1-506-467-11	o	RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING 2P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-468-11	o	RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING 3P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-469-11	o	RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING 4P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-470-11	o	RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING 5P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-471-31	o	RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-506-485-11	o	RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING 6P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-472-11	o	RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-506-486-11	o	RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING 7P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-473-11	o	RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING 8P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-474-11	o	RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-488-11	o	RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING 9P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-475-11	o	RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING 10P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-476-11	o	RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-506-490-21	o	RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING 11P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-477-11	o	RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-506-491-11	o	RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING 12P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-478-11	o	RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-506-492-11	o	RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING 13P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-479-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-480-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32

CONNECTOR, RECEPTACLE (STRAIGHT TYPE)
CONNECTOR, RECEPTACLE (ANGLE TYPE)
CONNECTOR, HOUSING
CONNECTOR, CONTACT AWG24-30/AWG32

2P - 15P

Part No.	SP	Description
1-564-001-11	o	RECEPTACLE 2P MALE (STRAIGHT TYPE)
1-564-012-11	o	RECEPTACLE 2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING 2P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-002-11	o	RECEPTACLE 3P MALE (STRAIGHT TYPE)
1-564-013-11	o	RECEPTACLE 3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING 3P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-003-11	o	RECEPTACLE 4P MALE (STRAIGHT TYPE)
1-564-014-11	o	RECEPTACLE 4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING 4P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-004-11	o	RECEPTACLE 5P MALE (STRAIGHT TYPE)
1-564-015-11	o	RECEPTACLE 5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING 5P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-005-11	o	RECEPTACLE 6P MALE (STRAIGHT TYPE)
1-564-016-11	o	RECEPTACLE 6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING 6P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-006-11	o	RECEPTACLE 7P MALE (STRAIGHT TYPE)
1-564-017-11	o	RECEPTACLE 7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING 7P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-007-11	o	RECEPTACLE 8P MALE (STRAIGHT TYPE)
1-564-018-11	o	RECEPTACLE 8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING 8P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-008-41	o	RECEPTACLE 9P MALE (STRAIGHT TYPE)
1-564-019-11	o	RECEPTACLE 9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING 9P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-009-11	o	RECEPTACLE 10P MALE (STRAIGHT TYPE)
1-564-020-11	o	RECEPTACLE 10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING 10P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-010-21	o	RECEPTACLE 11P MALE (STRAIGHT TYPE)
1-564-021-11	o	RECEPTACLE 11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING 11P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-011-11	o	RECEPTACLE 12P MALE (STRAIGHT TYPE)
1-564-022-11	o	RECEPTACLE 12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING 12P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-683-11	o	RECEPTACLE 13P MALE (STRAIGHT TYPE)
1-564-743-11	o	RECEPTACLE 13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING 13P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-069-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-564-630-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32
1-564-855-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-564-877-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-564-026-21	o	CONTACT AWG24-30
1-564-681-21	o	CONTACT AWG32

AT-52 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-624-A	O	MOUNTED CIRCUIT BOARD "AT-52"
C18	1-125-446-11	S	DOUBLE LAYERS 0.47F 5.5V
CN1	1-506-731-21	O	RECEPTACLE, 40P MALE
D1	8-719-100-05	S	1S2837
D2	8-719-100-03	S	1S2835
D3	8-719-100-05	S	1S2837
IC1	1-807-412-12	S	BH-1219A: SONY
IC2	1-807-413-11	S	BH-1220: SONY
IC3	1-807-414-11	S	BH-1221: SONY
IC4	8-759-200-82	S	TC4069UBF: TOSHIBA
IC5	8-759-906-54	S	TL064CNS: TI
IC6	8-759-200-99	S	TC4051BF: TOSHIBA
IC7	8-759-101-12	S	μPC311G2: NEC
IC8	8-759-918-65	S	TL7700CPS: TI
IC9	8-759-204-79	S	TC40H241F: TOSHIBA
IC10	8-759-939-53	S	TL062ACPS: TI
IC11	8-759-400-89	S	MN1237AD: MATSUSHITA
IC12	8-741-117-90	S	BX1179: SONY
IC13	8-759-200-82	S	TC4069UBF: TOSHIBA
IC14	8-759-303-52	S	HD63P05Y0: HITACHI
IC15			
IC16	8-741-117-90	S	BX1179: SONY
Q1	8-729-100-66	S	2SC1623
Q2	8-729-102-76	S	2SA812
Q3	8-729-100-66	S	2SC1623
Q4	8-729-100-66	S	2SC1623
Q5	8-729-100-66	S	2SC1623
Q6	8-729-102-76	S	2SA812
R52	1-216-689-91	S	METAL CHIP 39K 0.50% 1/10W
R53	1-216-699-91	S	METAL CHIP 100K 0.50% 1/10W
R54	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
RP1	1-235-813-11	S	NETWORK RESISTER
RP2	1-235-813-11	S	NETWORK RESISTER
RP3	1-231-387-21	S	25K
RV1	1-237-035-21	S	METAL 5K
RV2	1-237-036-21	S	METAL 10K
S1	1-570-602-11	S	DIP
S2	1-570-374-11	S	SLIDE
X1	1-567-192-11	S	4.0MHz

BI-14 BOARD

Ref No.	Parts No.	SP	Description
C101	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C102	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C103	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C104	1-135-079-95	S	TANTAL CHIP 3.3MF 10% 35V
C106	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C107	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C108	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C201	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C202	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C203	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C204	1-135-079-95	S	TANTAL CHIP 3.3MF 10% 35V
C206	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C207	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C208	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C301	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C302	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C303	1-163-033-00	S	CERAMIC CHIP 0.022MF 10%25V
C304	1-135-079-95	S	TANTAL CHIP 3.3MF 10% 35V
C306	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C307	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
C308	1-135-145-95	S	TANTAL CHIP 0.47MF 10% 35V
CN1	1-562-773-11	O	RECEPTACLE, 40P FEMALE
Q101	8-729-175-72	S	2SC2757-T33
Q201	8-729-175-72	S	2SC2757-T33
Q301	8-729-175-72	S	2SC2757-T33
R103	1-216-693-91	S	METAL CHIP 56K 0.50% 1/10W
R104	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
R105	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
R203	1-216-693-91	S	METAL CHIP 56K 0.50% 1/10W
R204	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
R205	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
R303	1-216-693-91	S	METAL CHIP 56K 0.50% 1/10W
R304	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W
R305	1-216-691-91	S	METAL CHIP 47K 0.50% 1/10W

CN-189 BOARD

Ref No.	Parts No.	SP	Description
	1-623-797-11	O	PRINTED CIRCUIT BOARD "CN-189"
CN1	1-562-743-11	O	RECEPTACLE, 10P
CN104	1-565-050-11	O	RECEPTACLE, 50P MALE

CN-209 BOARD

Ref No.	Parts No.	SP	Description
	1-622-362-11	O	PRINTED CIRCUIT BOARD "CN-209"
	1-807-424-11	O	ELEMENT, PELTIER

DR-55 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-585-A	O	MOUNTED CIRCUIT BOARD "DR-55"
C16	1-124-225-41	S	ELECT 100MF 20% 6.3V
C28	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C29	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C30	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C31	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C40	1-124-557-11	S	ELECT 1000MF 20% 25V
C43	1-163-033-00	S	CERAMIC CHIP 0.022MF 25V
C51	1-107-206-11	S	MICA 15PF 5% 500V
C56	1-124-479-11	S	ELECT 330MF 20% 25V
CN2	1-566-573-11	O	RECEPTACLE, 25P
CN3	1-564-850-11	O	RECEPTACLE, 40P MALE
D1	8-719-200-29	S	11DQ04
D3	8-719-200-29	S	11DQ04
D4	8-719-100-05	S	1S2837
D5	8-719-200-29	S	11DQ04
D6	8-719-100-03	S	1S2835
D7	8-719-100-05	S	1S2837
D8	8-719-100-05	S	1S2837
D9	8-719-100-05	S	1S2837
D11	8-719-942-33	S	HZ3CLL

Ref No.	Parts No.	SP	Description
IC1	8-752-031-03	S	CXA1065M: SONY
IC2	8-752-031-03	S	CXA1065M: SONY
IC3	8-752-031-03	S	CXA1065M: SONY
IC4	8-752-031-03	S	CXA1065M: SONY
IC5	8-759-000-26	S	MMH0026CP1: MOTOROLA
IC6	8-759-000-26	S	MMH0026CP1: MOTOROLA
IC7	8-759-000-26	S	MMH0026CP1: MOTOROLA
IC8	8-752-001-10	S	CX20011: SONY
IC9	8-759-914-44	S	TL431CLPB: TI
IC10	8-759-204-98	S	TC74HC08F: TOSHIBA
Q1	8-729-102-76	S	2SA812
Q2	8-729-102-76	S	2SA812
R34	1-216-645-91	S	METAL CHIP 560 0.50% 1/10W
R35	1-216-655-91	S	METAL CHIP 1.5K 0.50% 1/10W

EN-69/69P BOARD

Ref No.	Parts No.	SP	Description
	A-7513-618-A	O	MOUNTED CIRCUIT BOARD "EN-69"
	A-7513-619-A	O	MOUNTED CIRCUIT BOARD "EN-69P"
C9	1-107-042-11	S	MICA 2.2PF 0.5PF 500V
C10	1-107-040-11	S	MICA 1.5PF 0.5PF 500V
C19	1-162-881-11	S	CERAMIC 150PF 5% 50V (J,UC)
	1-162-876-11	S	CERAMIC 75PF 5% 50V (EK)
C20	1-162-873-11	S	CERAMIC 56PF 5% 50V (J,UC)
	1-107-075-00	S	MICA 39PF 5% 50V (EK)
C26	1-107-043-11	S	MICA 2.7PF 0.5PF 500V
C27	1-107-043-11	S	MICA 2.7PF 0.5PF 500V
C28	1-107-043-11	S	MICA 2.7PF 0.5PF 500V
C41	1-107-042-11	S	MICA 2.2PF 0.5PF 500V
C51	1-162-878-11	S	CERAMIC 91PF 5% 50V
C52	1-162-879-11	S	CERAMIC 100PF 5% 50V (J,UC)
	1-162-871-11	S	CERAMIC 47PF 5% 50V (EK)
C53	1-107-047-11	S	MICA 5.6PF 0.5PF 500V (J,UC)
	1-107-206-00	S	MICA 15PF 5% 500V (EK)
C54	1-107-075-11	S	MICA 39PF 5% 50V (J ,UC)
	1-162-876-11	S	CERAMIC 75PF 5% 50V (EK)
C69	1-107-075-11	S	MICA 39PF 5% 50V (J ,UC)
	1-162-879-11	S	CERAMIC 100PF 5% 50V (EK)
C70	1-107-211-11	S	MICA 24PF 5% 500V (J,UC)
	1-162-884-11	S	CERAMIC 270PF 5% 50V (EK)
C71	1-162-878-11	S	CERAMIC 91PF 5% 50V (J,UC)

Ref No.	Parts No.	SP	Description
C74	1-124-289-11	S	ELECT 33MF 20% 10V
C77	1-107-159-11	S	MICA 33PF 5% 500V (J,UC)
	1-107-202-11	S	MICA 10PF 5% 500V (J,UC)
	1-107-209-11	S	MICA 20PF 5% 500V (J,UC)
C78	1-162-888-11	S	CERAMIC 560PF 5% 50V (J,UC)
	1-162-879-11	S	CERAMIC 100PF 5% 50V (EK)
C79	1-162-881-11	S	CERAMIC 150PF 5% 50V (J,UC)
	1-162-884-11	S	CERAMIC 270PF 5% 50V (EK)
C82	1-124-289-11	S	ELECT 33MF 20% 10V
C94	1-124-292-11	S	ELECT 33MF 20% 6.3V
C98	1-107-042-11	S	MICA 2.2PF 0.5PF 500V
C102	1-107-158-00	S	MICA 30PF 5% 500V (EK)
CN1	1-506-730-11	O	RECEPTACLE, 40P MALE
CV1	1-141-298-11	S	CERAMIC TRIMMER 10P
D1	8-719-101-23	S	1SS123 (J,UC)
D2	8-719-914-11	S	HZ4ALL
D3	8-719-101-23	S	1SS123
D4	8-719-100-05	S	1S2837
D5	8-719-100-05	S	1S2837
DL1	1-415-482-11	S	790±10nS (J,UC)
	1-415-483-11	S	338±7nS (EK)
DL2	1-415-290-21	S	0.41µS±10nS (J,UC)
FL1	1-235-161-12	S	BAND PASS 3.5MHz (J,UC)
	1-235-181-00	S	BAND PASS 4.43MHz (EK)
IC1	8-759-200-81	S	TC4053BF: TOSHIBA
IC2	1-807-421-11	S	BH-1216: SONY
IC3	8-741-135-60	S	BX1356: SONY
IC4	8-759-906-59	S	CX22017: SONY
IC5	8-759-200-79	S	TC4049BF: TOSHIBA
IC6	8-759-911-77	S	CX7968A: SONY
IC7	1-807-421-11	S	BH-1216: SONY
IC8	1-807-419-11	S	BH-1214: SONY
IC9	1-807-418-11	S	BH-1213: SONY
IC10	1-807-420-12	S	BH-1215A: SONY
IC11	1-807-423-11	S	BH-1218: SONY
IC12	8-759-700-07	S	NJM2903M: JRC
IC13	8-759-200-79	S	TC4049BF: TOSHIBA
L1	1-408-417-21	S	47µH
L2	1-408-417-21	S	47µH
L3	1-408-417-21	S	47µH
L4	1-408-849-11	S	330µH (J,UC)
	1-408-419-00	S	68µH (EK)
L5	1-408-145-11	S	19µH (J,UC)
L6	1-408-851-11	S	560µH (J,UC)
	1-408-419-00	S	68µH (EK)
LV1	1-408-844-11	S	22µH
LV2	1-408-845-11	S	100µH (J,UC)
	1-410-619-11	S	220µH (EK)
Q1	8-729-102-76	S	2SA812
Q2	8-729-102-76	S	2SA812
Q3	8-729-102-76	S	2SA812
Q4	8-729-100-66	S	2SC1623
Q5	8-729-100-66	S	2SC1623
Q6	8-729-100-66	S	2SC1623
Q7	8-729-100-66	S	2SC1623
Q8	8-729-102-76	S	2SA812
Q9	8-729-100-66	S	2SC1623
Q10	8-729-100-66	S	2SC1623
Q11	8-729-100-66	S	2SC1623
Q12	8-729-100-66	S	2SC1623
Q13	8-729-100-66	S	2SC1623
Q14	8-729-100-66	S	2SC1623
Q15	8-729-102-76	S	2SA812
Q16	8-729-100-66	S	2SC1623
Q17	8-729-100-66	S	2SC1623
Q18	8-729-100-66	S	2SC1623
Q19	8-729-100-66	S	2SC1623
Q20	8-729-102-76	S	2SA812
Q21	8-729-100-66	S	2SC1623
Q22	8-729-100-66	S	2SC1623 (J,UC)
Q23	8-729-175-72	S	2SC2757-T33 (J,UC)
Q24	8-729-100-66	S	2SC1623 (J,UC)
Q25	8-729-122-63	S	2SA1226
Q26	8-729-100-66	S	2SC1623
Q27	8-729-175-72	S	2SC2757-T33
Q28	8-729-100-66	S	2SC1623
Q29	8-729-122-63	S	2SA1226
Q30	8-729-102-76	S	2SA812
Q31	8-729-100-66	S	2SC1623
Q32	8-729-102-76	S	2SA812
Q33	8-729-102-76	S	2SA812
Q34	8-729-100-66	S	2SC1623
Q35	8-729-100-66	S	2SC1623

Ref No.	Parts No.	SP	Description
R46	1-216-644-91	S	METAL CHIP 510 0.50% 1/10W (J,UC)
	1-216-642-11	S	METAL CHIP 430 0.50% 1/10W (EK)
R47	1-216-644-91	S	METAL CHIP 510 0.50% 1/10W (J,UC)
	1-216-642-11	S	METAL CHIP 430 0.50% 1/10W (EK)
R69	1-216-653-91	S	METAL CHIP 1.2K 0.50% 1/10W
R70	1-216-655-91	S	METAL CHIP 1.5K 0.50% 1/10W
R109	1-216-669-11	S	METAL CHIP 5.6K 0.50% 1/10W (J,UC)
	1-216-654-11	S	METAL CHIP 1.3K 0.50% 1/10W (EK)
R131	1-216-652-91	S	METAL CHIP 1.1K 0.50% 1/10W (J,UC)
	1-216-699-11	S	METAL CHIP 100K 0.50% 1/10W (EK)
R133	1-216-663-91	S	METAL CHIP 3.3K 0.50% 1/10W (J,UC)
	1-216-664-11	S	METAL CHIP 3.6K 0.50% 1/10W (EK)
R134	1-216-670-91	S	METAL CHIP 6.2K 0.50% 1/10W (J,UC)
RP1	1-235-528-12	S	RES, NETWORK
RP2	1-235-528-12	S	RES, NETWORK
RP3	1-235-526-11	S	RES, NETWORK
RP4	1-235-527-11	S	RES, NETWORK
RP5	1-235-529-11	S	RES, NETWORK (J,UC)
	1-235-526-11	S	RES, NETWORK (EK)
RP6	1-235-530-11	S	RES, NETWORK (J,UC)
RP7	1-235-527-11	S	RES, NETWORK (EK)
RV1	1-228-457-11	S	METAL 2K (J,UC)
RV2	1-228-459-11	S	METAL 10K
RV3	1-228-459-11	S	METAL 10K (J,UC)
RV4	1-228-456-11	S	METAL 1K
RV5	1-228-456-11	S	METAL 1K
RV6	1-228-457-11	S	METAL 2K
RV7	1-228-457-11	S	METAL 2K
RV8	1-228-457-11	S	METAL 2K
RV9	1-228-459-11	S	METAL 10K (J,UC)
RV10	1-228-457-11	S	METAL 2K (J,UC)
RV11	1-228-459-11	S	METAL 10K
RV12	1-228-456-11	S	METAL 1K
RV13	1-228-473-11	S	METAL 5K
RV14	1-228-457-11	S	METAL 2K
RV15	1-228-460-11	S	METAL 20K (J,UC)
	1-228-459-11	S	METAL 10K (EK)
RV16	1-228-460-11	S	METAL 20K (J,UC)
RV17	1-228-454-11	S	METAL 200
RV18	1-228-454-11	S	METAL 20
RV19	1-228-473-11	S	METAL 5K
RV20	1-228-457-11	S	METAL 2K (J,UC)
	1-228-456-11	S	METAL 1K (EK)

Ref No.	Parts No.	SP	Description
RV21	1-228-473-11	S	METAL 5K
RV22	1-228-457-11	S	METAL 2K
RV23	1-228-457-11	S	METAL 2K
S1	1-570-857-11	S	SLIDE
S2	1-570-857-11	S	SLIDE
S3	1-570-857-11	S	SLIDE

HN-96 BOARD

	A-7513-621-A	O	MOUNTED CIRCUIT BOARD "HN-96"
	1-939-724-11	O	HARNESS (AT 8P)
CN1	1-563-239-21	O	RECEPTACLE, 40P FEMALE
CN2	1-563-239-11	O	RECEPTACLE, 40P FEMALE
CN3	1-563-239-11	O	RECEPTACLE, 40P FEMALE
CN4	1-563-239-11	O	RECEPTACLE, 40P FEMALE
CN5	1-563-239-11	O	RECEPTACLE, 40P FEMALE
CN6	1-563-239-11	O	RECEPTACLE, 40P FEMALE
CN7	1-563-239-21	O	RECEPTACLE, 40P FEMALE
CN8	1-506-635-11	O	RECEPTACLE, 12P MALE
	1-563-120-11	O	PLUG HOUSING, 12P
	1-563-115-11	O	PLUG CONTACT
CN20	1-506-639-11	O	RECEPTACLE, 20P MALE
	1-563-124-11	O	PLUG HOUSING, 20P
	1-563-115-11	O	PLUG CONTACT
CN27	1-506-638-11	O	RECEPTACLE, 18P MALE
	1-563-123-11	O	PLUG HOUSING, 18P
	1-563-115-11	O	PLUG CONTACT
D1	8-719-911-19	S	1SS119
D2	8-719-911-19	S	1SS119
D3	8-719-911-19	S	1SS119
D4	8-719-911-19	S	1SS119
IC1	8-759-403-48	S	AN6701S: MATSUSHITA

IE-21/21P BOARD

	A-7513-615-A	O	MOUNTED CIRCUIT BOARD "IE-21"
	A-7513-616-A	O	MOUNTED CIRCUIT BOARD "IE-21P"

Ref No.	Parts No.	SP	Description
C10	1-107-047-11	S	MICA 5.6PF 0.5PF 500V
C16	1-107-159-11	S	MICA 33PF 5% 500V
C19	1-107-159-11	S	MICA 33PF 5% 500V
C20	1-107-208-11	S	MICA 18PF 5% 500V
C26	1-107-202-11	S	MICA 10PF 5% 500V
C31	1-107-159-11	S	MICA 33PF 5% 500V
C34	1-107-159-11	S	MICA 33PF 5% 500V
C37	1-107-208-11	S	MICA 18PF 5% 500V
C42	1-161-896-21	S	CERAMIC 0.22MF 50V
C43	1-161-896-21	S	CERAMIC 0.22MF 50V
C44	1-124-270-11	S	ELECT 0.47MF 20% 50V
C45	1-124-270-11	S	ELECT 0.47MF 20% 50V
C46	1-161-896-21	S	CERAMIC 0.22MF 50V
C47	1-124-270-11	S	ELECT 0.47MF 20% 50V
C48	1-124-270-11	S	ELECT 0.47MF 20% 50V
C57	1-162-879-11	S	CERAMIC 100PF 5% 50V
C72	1-162-878-11	S	CERAMIC 91PF 5% 50V
C76	1-161-896-21	S	CERAMIC 0.22MF 50V
C79	1-107-075-11	S	MICA 39PF 5% 50V
C84	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C85	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C86	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C87	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C99	1-124-169-11	S	ELECT 100MF 20% 10V
CN1	1-506-730-11	0	RECEPTACLE, 40P MALE
CV1	1-141-301-11	S	CERAMIC TRIMMER 35P
CV2	1-141-291-11	S	CERAMIC TRIMMER 20P
CV3	1-141-291-11	S	CERAMIC TRIMMER 20P
D1	8-719-101-23	S	1SS123
D2	8-719-100-03	S	1S2835
D3	8-719-100-03	S	1S2835
D4	8-719-101-97	S	1SS97-1
D5	8-719-101-97	S	1SS97-1
D6	8-719-815-59	S	1S1555-S
D7	8-719-100-03	S	1S2835
D8	8-719-101-97	S	1SS97-1
D9	8-719-101-97	S	1SS97-1
DL1	1-415-492-11	S	LINE-1 63.525µS±10nS LINE-2 63.560µS±20nS (J,UC)
	1-415-493-11	S	LINE-1 63.970µS±10nS LINE-2 64.005µS±20nS (EK)
DL2	1-415-485-11	S	120nS±6nS
IC1	8-759-700-95	S	NJM1496M: JRC
IC2	1-807-416-11	S	BH-1211: SONY
IC3	1-807-416-11	S	BH-1211: SONY
IC4	8-759-939-53	S	TL062ACPS: TI
IC5	1-807-422-11	S	BH-1217: SONY

Ref No.	Parts No.	SP	Description
IC6	8-759-939-53	S	TL062ACPS: TI
IC7	8-759-700-95	S	NJM1496M: JRC
IC8	8-759-200-90	S	TC4538BF: TOSHIBA
IC9	8-759-200-90	S	TC4538BF: TOSHIBA
IC10	8-759-200-68	S	TC4011BF: TOSHIBA
L1	1-408-417-21	S	47µH
L4	1-408-421-21	S	100µH
L5	1-408-170-11	S	18µH
L6	1-408-170-11	S	18µH
L7	1-408-421-21	S	100µH
L8	1-408-421-21	S	100µH
LV1	1-408-845-11	S	100µH
Q1	8-729-122-63	S	2SA1226
Q2	8-729-175-72	S	2SC2757-T33
Q3	8-729-122-63	S	2SA1226
Q4	8-729-175-72	S	2SC2757-T33
Q5	8-729-175-72	S	2SC2757-T33
Q6	8-729-109-43	S	2SK94-X3
Q7	8-729-175-72	S	2SC2757-T33
Q8	8-729-175-72	S	2SC2757-T33
Q9	8-729-175-72	S	2SC2757-T33
Q10	8-729-175-72	S	2SC2757-T33
Q11	8-729-175-72	S	2SC2757-T33
Q12	8-729-100-66	S	2SC1623
Q13	8-729-175-72	S	2SC2757-T33
Q14	8-729-122-63	S	2SA1226
Q15	8-729-175-72	S	2SC2757-T33
Q16	8-729-175-72	S	2SC2757-T33
Q17	8-729-175-72	S	2SC2757-T33
Q18	8-729-109-43	S	2SK94-X3
Q19	8-729-175-72	S	2SC2757-T33
Q20	8-729-175-72	S	2SC2757-T33
Q21	8-729-175-72	S	2SC2757-T33
Q22	8-729-175-72	S	2SC2757-T33
Q23	8-729-175-72	S	2SC2757-T33
Q24	8-729-122-63	S	2SA1226
Q25	8-729-109-43	S	2SK94-X3
Q26	8-729-109-43	S	2SK94-X3
Q27	8-729-122-63	S	2SA1226
Q28	8-729-122-63	S	2SA1226
Q29	8-729-109-43	S	2SK94-X3
Q30	8-729-109-43	S	2SK94-X3
Q31	8-729-122-63	S	2SA1226
Q32	8-729-122-63	S	2SA1226
Q33	8-729-122-63	S	2SA1226
Q34	8-729-122-63	S	2SA1226
Q35	8-729-122-63	S	2SA1226

Ref No.	Parts No.	SP	Description
Q36	8-729-122-63	S	2SA1226
Q37	8-729-175-72	S	2SC2757-T33
Q38	8-729-109-43	S	2SK94-X3
Q39	8-729-109-43	S	2SK94-X3
Q40	8-729-175-72	S	2SC2757-T33
Q41	8-729-175-72	S	2SC2757-T33
Q42	8-729-175-72	S	2SC2757-T33
Q43	8-729-175-72	S	2SC2757-T33
Q44	8-729-109-43	S	2SK94-X3
Q45	8-729-109-43	S	2SK94-X3
Q46	8-729-175-72	S	2SC2757-T33
Q47	8-729-175-72	S	2SC2757-T33
Q48	8-729-122-63	S	2SA1226
Q49	8-729-122-63	S	2SA1226
Q50	8-729-122-63	S	2SA1226
Q51	8-729-122-63	S	2SA1226
Q52	8-729-122-63	S	2SA1226
Q53	8-729-175-72	S	2SC2757-T33
Q54	8-729-175-72	S	2SC2757-T33
Q55	8-729-175-72	S	2SC2757-T33
Q56	8-729-122-63	S	2SA1226
Q57	8-729-122-63	S	2SA1226
Q63	8-729-122-63	S	2SA1226
R14	1-216-663-91	S	METAL CHIP 3.3K 0.50% 1/10W
RV1	1-228-457-11	S	METAL 2K
RV2	1-228-455-11	S	METAL 500
RV3	1-228-456-11	S	METAL 1K
RV4	1-228-470-11	S	METAL 500 (J : 10001~10050) (UC: 10001~10098)
	1-228-471-00	S	METAL 1K
RV5	1-228-474-11	S	METAL 10K
RV6	1-228-458-11	S	METAL 5K
RV7	1-228-472-11	S	METAL 2K
RV8	1-228-470-11	S	METAL 500
RV9	1-228-457-11	S	METAL 2K
S1	1-570-610-11	S	TOGGLE

MP-19 BOARD

Ref No.	Parts No.	SP	Description
RV1	1-223-165-00	S	WIREWOUND 10K

PA-58 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-586-A	O	MOUNTED CIRCUIT BOARD "PA-58"
C35	1-102-108-21	S	CERAMIC 150PF 10% 50V
C36	1-102-106-21	S	CERAMIC 100PF 10% 50V
C37	1-102-106-21	S	CERAMIC 100PF 10% 50V
CN3	1-563-238-11	O	RECEPTACLE, 15P FEMALE
CV1	1-141-366-11	S	CHIP TRIMMER 10PF
CV2	1-141-366-11	S	CHIP TRIMMER 10PF
CV3	1-141-366-11	S	CHIP TRIMMER 10PF
Q1	8-729-122-63	S	2SA1226
Q2	8-769-401-68	S	3SK163-2
Q3	8-729-100-66	S	2SC1623
Q4	8-729-122-63	S	2SA1226
Q5	8-769-401-68	S	3SK163-2
Q6	8-729-100-66	S	2SC1623
Q7	8-729-122-63	S	2SA1226
Q8	8-769-401-68	S	3SK163-2
Q9	8-729-100-66	S	2SC1623
Q10	8-729-122-63	S	2SA1226
Q11	8-769-401-68	S	3SK163-2
Q12	8-729-100-66	S	2SC1623
Q13	8-729-122-63	S	2SA1226
Q14	8-769-401-68	S	3SK163-2
Q15	8-729-100-66	S	2SC1623
Q16	8-729-175-72	S	2SC2757-T33
Q17	8-729-100-66	S	2SC1623
Q18	8-729-175-72	S	2SC2757-T33
Q19	8-729-100-66	S	2SC1623
Q20	8-729-175-72	S	2SC2757-T33
Q21	8-729-122-63	S	2SA1226
Q22	8-769-401-68	S	3SK163-2
Q23	8-729-100-66	S	2SC1623
Q24	8-729-122-63	S	2SA1226
Q25	8-769-401-68		3SK163-2
Q26	8-729-100-66	S	2SC1623
Q27	8-729-122-63	S	2SA1226
Q28	8-769-401-68	S	3SK163-2
Q29	8-729-100-66	S	2SC1623
Q30	8-729-175-72	S	2SC2757-T33
Q31	8-729-100-66	S	2SC1623
Q32	8-729-175-72	S	2SC2757-T33
Q33	8-729-100-66	S	2SC1623
Q34	8-729-175-72	S	2SC2757-T33
Q35	8-729-122-63	S	2SA1226
Q36	8-769-401-68	S	3SK163-2
Q37	8-729-100-66	S	2SC1623
Q38	8-729-122-63	S	2SA1226
Q39	8-769-401-68	S	3SK163-2
Q40	8-729-100-66	S	2SC1623
Q41	8-729-122-63	S	2SA1226
Q42	8-769-401-68	S	3SK163-2
Q43	8-729-100-66	S	2SC1623
Q44	8-729-175-72	S	2SC2757-T33
Q45	8-729-100-66	S	2SC1623

Ref No.	Parts No.	SP	Description
Q46	8-729-175-72	S	2SC2757-T33
Q47	8-729-100-66	S	2SC1623
Q48	8-729-175-72	S	2SC2757-T33
R82	1-215-482-51	S	METAL 360K 1% 1/6W
R83	1-215-483-51	S	METAL 390K 1% 1/6W
R84	1-215-470-51	S	METAL 110K 1% 1/6W
R85	1-216-643-91	S	METAL CHIP 470 0.50% 1/10W
R86	1-216-643-91	S	METAL CHIP 470 0.50% 1/10W
R87	1-216-643-91	S	METAL CHIP 470 0.50% 1/10W

PR-78 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-394-A	0	MOUNTED CIRCUIT BOARD "PR-78"
C7	1-124-499-11	S	ELECT 1MF 20% 50V
C8	1-161-892-21	S	CERAMIC 0.047MF 50V
C9	1-124-283-11	S	ELECT 4.7MF 20% 16V
C16	1-107-206-11	S	MICA 15PF 5% 500V
C19	1-124-270-11	S	ELECT 0.47MF 20% 50V
C20	1-124-270-11	S	ELECT 0.47MF 20% 50V
C24	1-124-499-11	S	ELECT 1MF 20% 50V
C25	1-161-892-21	S	CERAMIC 0.047MF 50V
C26	1-124-283-11	S	ELECT 4.7MF 20% 16V
C29	1-124-270-11	S	ELECT 0.47MF 20% 50V
C34	1-107-206-11	S	MICA 15PF 5% 500V
C41	1-124-270-11	S	ELECT 0.47MF 20% 50V
C42	1-124-270-11	S	ELECT 0.47MF 20% 50V
C45	1-124-499-11	S	ELECT 1MF 20% 50V
C46	1-161-892-21	S	CERAMIC 0.047MF 50V
C47	1-124-283-11	S	ELECT 4.7MF 20% 16V
C55	1-107-206-11	S	MICA 15PF 5% 500V
C60	1-124-270-11	S	ELECT 0.47MF 20% 50V
C62	1-124-270-11	S	ELECT 0.47MF 20% 50V
C74	1-161-459-11	S	CERAMIC 100PF 5% 50V
C75	1-161-459-11	S	CERAMIC 100PF 5% 50V
C76	1-161-459-11	S	CERAMIC 100PF 5% 50V
C78	1-161-477-11	S	CERAMIC 56PF 5% 50V
C81	1-161-459-11	S	CERAMIC 100PF 5% 50V
C82	1-161-459-11	S	CERAMIC 100PF 5% 50V
C83	1-161-459-11	S	CERAMIC 100PF 5% 50V
C84	1-131-363-00	S	TANTALUM 4.7MF 10% 16V
C85	1-102-947-00	S	CERAMIC 10PF±0.5PF
C86	1-102-947-00	S	CERAMIC 10PF±0.5PF
C87	1-102-947-00	S	CERAMIC 10PF±0.5PF
CN1	1-506-730-11	0	RECEPTACLE, 40P MALE
CV1	1-141-301-11	S	CERAMIC TRIMMER 35P
CV2	1-141-301-11	S	CERAMIC TRIMMER 35P
CV3	1-141-301-11	S	CERAMIC TRIMMER 35P

Ref No.	Parts No.	SP	Description
D1	8-719-101-23	S	1SS123
D2	8-719-101-97	S	1SS97-1
D3	8-719-101-23	S	1SS123
D4	8-719-101-97	S	1SS97-1
D5	8-719-815-59	S	1S1555-S
D6	8-719-815-59	S	1S1555-S
D7	8-719-815-59	S	1S1555-S
D8	8-719-815-59	S	1S1555-S
D9	8-719-910-72	S	HZ7A2L
D10	8-719-101-23	S	1SS123
D11	8-719-815-59	S	1S1555-S
D12	8-719-101-97	S	1SS97-1
D13	8-719-101-23	S	1SS123
D14	8-719-101-97	S	1SS97-1
D15	8-719-815-59	S	1S1555-S
D16	8-719-815-59	S	1S1555-S
D17	8-719-815-59	S	1S1555-S
D18	8-719-815-59	S	1S1555-S
D19	8-719-910-72	S	HZ7A2L
D20	8-719-101-23	S	1SS123
D22	8-719-101-97	S	1SS97-1
D23	8-719-101-23	S	1SS123
D24	8-719-101-97	S	1SS97-1
D25	8-719-815-59	S	1S1555-S
D26	8-719-815-59	S	1S1555-S
D27	8-719-815-59	S	1S1555-S
D28	8-719-815-59	S	1S1555-S
D29	8-719-910-72	S	HZ7A2L
D31	8-719-100-05	S	1S2837
D32	8-719-100-03	S	1S2835
D33	8-719-911-19	S	1SS119
D34	8-719-815-59	S	1S1555-S
DL1	1-415-489-11	S	160nS±8nS
DL2	1-415-489-11	S	160nS±8nS
DL3	1-415-489-11	S	160nS±8nS
IC1	1-807-422-11	S	BH-1217: SONY
IC2	8-759-939-53	S	TL062ACPS: TI
IC3	8-759-939-53	S	TL062ACPS: TI
IC4	1-807-422-11	S	BH-1217: SONY
IC5	8-759-939-53	S	TL062ACPS: TI
IC6	1-807-422-11	S	BH-1217: SONY
IC7	8-759-939-53	S	TL062ACPS: TI
IC8	8-759-939-53	S	TL062ACPS: TI
IC9	1-807-422-11	S	BH-1217: SONY
IC10	1-807-422-11	S	BH-1217: SONY
IC11	8-759-939-53	S	TL062ACPS: TI
IC12	8-759-939-53	S	TL062ACPS: TI
IC13	1-807-422-11	S	BH-1217: SONY
IC14	8-759-939-53	S	TL062ACPS: TI
IC15	8-759-200-81	S	TC4053BF: TOSHIBA

Ref No.	Parts No.	SP	Description
L2	1-408-417-21	S	47μH
L3	1-408-417-21	S	47μH
L4	1-408-413-21	S	22μH
Q1	8-729-175-72	S	2SC2757-T33
Q2	8-729-122-63	S	2SA1226
Q3	8-729-109-43	S	2SK94-X3
Q4	8-729-175-72	S	2SC2757-T33
Q5	8-729-175-72	S	2SC2757-T33
Q6	8-729-122-63	S	2SA1226
Q7	8-729-122-63	S	2SA1226
Q8	8-729-122-63	S	2SA1226
Q9	8-729-122-63	S	2SA1226
Q10	8-729-175-72	S	2SC2757-T33
Q11	8-729-175-72	S	2SC2757-T33
Q12	8-729-175-72	S	2SC2757-T33
Q13	8-729-175-72	S	2SC2757-T33
Q14	8-729-109-43	S	2SK94-X3
Q15	8-729-122-63	S	2SA1226
Q16	8-729-175-72	S	2SC2757-T33
Q17	8-729-122-63	S	2SA1226
Q18	8-729-122-63	S	2SA1226
Q19	8-729-109-43	S	2SK94-X3
Q20	8-729-175-72	S	2SC2757-T33
Q21	8-729-175-72	S	2SC2757-T33
Q22	8-729-122-63	S	2SA1226
Q23	8-729-122-63	S	2SA1226
Q24	8-729-122-63	S	2SA1226
Q25	8-729-122-63	S	2SA1226
Q26	8-729-175-72	S	2SC2757-T33
Q27	8-729-175-72	S	2SC2757-T33
Q28	8-729-175-72	S	2SC2757-T33
Q29	8-729-175-72	S	2SC2757-T33
Q30	8-729-109-43	S	2SK94-X3
Q31	8-729-175-72	S	2SC2757-T33
Q32	8-729-122-63	S	2SA1226
Q33	8-729-109-43	S	2SK94-X3
Q34	8-729-175-72	S	2SC2757-T33
Q35	8-729-175-72	S	2SC2757-T33
Q36	8-729-175-72	S	2SC2757-T33
Q37	8-729-122-63	S	2SA1226
Q38	8-729-122-63	S	2SA1226
Q39	8-729-122-63	S	2SA1226
Q40	8-729-122-63	S	2SA1226
Q41	8-729-122-63	S	2SA1226
Q42	8-729-175-72	S	2SC2757-T33
Q43	8-729-175-72	S	2SC2757-T33
Q44	8-729-175-72	S	2SC2757-T33
Q45	8-729-175-72	S	2SC2757-T33
Q46	8-729-109-43	S	2SK94-X3
Q47	8-729-122-63	S	2SA1226
Q48	8-729-175-72	S	2SC2757-T33
Q49	8-729-175-72	S	2SC2757-T33
Q50	8-729-175-72	S	2SC2757-T33

Ref No.	Parts No.	SP	Description
Q51	8-729-175-72	S	2SC2757-T33
Q52	8-729-175-72	S	2SC2757-T33
Q53	8-729-175-72	S	2SC2757-T33
Q54	8-729-175-72	S	2SC2757-T33
Q55	8-729-175-72	S	2SC2757-T33
Q56	8-729-175-72	S	2SC2757-T33
Q57	8-729-175-72	S	2SC2757-T33
Q58	8-729-175-72	S	2SC2757-T33
Q59	8-729-175-72	S	2SC2757-T33
Q60	8-729-175-72	S	2SC2757-T33
Q61	8-729-175-72	S	2SC2757-T33
Q62	8-729-364-11	S	2SC641K
Q63	8-729-364-11	S	2SC641K
Q64	8-729-175-72	S	2SC2757-T33
Q65	8-729-175-72	S	2SC2757-T33
Q66	8-729-122-63	S	2SA1226
Q67	8-729-122-63	S	2SA1226
Q68	8-729-122-63	S	2SA1226
Q69	8-729-175-72	S	2SC2757-T33
Q70	8-729-175-72	S	2SC2757-T33
Q71	8-729-175-72	S	2SC2757-T33
R218	1-216-661-91	S	METAL CHIP 2.7K 0.50% 1/10W
R219	1-216-661-91	S	METAL CHIP 2.7K 0.50% 1/10W
R220	1-216-661-91	S	METAL CHIP 2.7K 0.50% 1/10W
RV1	1-228-455-11	S	METAL 500
RV2	1-228-473-11	S	METAL 5K
RV3	1-228-472-11	S	METAL 2K
RV4	1-228-457-11	S	METAL 2K
RV5	1-228-458-11	S	METAL 5K
RV6	1-228-457-11	S	METAL 2K
RV7	1-228-474-11	S	METAL 10K
RV8	1-228-470-11	S	METAL 500
RV9	1-228-471-11	S	METAL 1K
RV10	1-228-455-11	S	METAL 500
RV11	1-228-473-11	S	METAL 5K
RV12	1-228-472-11	S	METAL 2K
RV13	1-228-457-11	S	METAL 2K
RV14	1-228-458-11	S	METAL 5K
RV15	1-228-457-11	S	METAL 2K
RV16	1-228-474-11	S	METAL 10K
RV17	1-228-470-11	S	METAL 500
RV18	1-228-471-11	S	METAL 1K
RV19	1-228-455-11	S	METAL 500
RV20	1-228-473-11	S	METAL 5K
RV21	1-228-472-11	S	METAL 2K
RV22	1-228-458-11	S	METAL 5K
RV23	1-228-457-11	S	METAL 2K
RV24	1-228-458-11	S	METAL 5K
RV25	1-228-457-11	S	METAL 2K
RV26	1-228-474-11	S	METAL 10K
RV27	1-228-470-11	S	METAL 500
RV28	1-228-471-11	S	METAL 1K
RV29	1-228-459-11	S	METAL 10K
RV30	1-228-459-11	S	METAL 10K

Ref No.	Parts No.	SP	Description
RV31	1-228-458-11	S	METAL 5K
RV32	1-228-458-11	S	METAL 5K
RV33	1-228-458-11	S	METAL 5K
RV34	1-228-458-11	S	METAL 5K
S1	1-554-076-11	S	SLIDE
S2	1-554-076-11	S	SLIDE
S3	1-554-076-11	S	SLIDE
S4	1-570-610-11	S	TOGGLE
S5	1-554-076-11	S	SLIDE
TH1	1-806-627-21	S	(POSITIVE) 1K
TH2	1-806-627-21	S	(POSITIVE) 1K
TH3	1-806-627-21	S	(POSITIVE) 1K

PS-163 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-620-A	O	MOUNTED CIRCUIT BOARD "PS-163"
C4	1-162-885-11	S	CERAMIC 330PF 5% 50V
C5	1-124-479-11	S	ELECT 330MF 20% 25V
C6	1-127-519-11	S	ELECT(SOLID) 100MF 20% 20V
C7	1-136-173-11	S	FILM 0.47MF 5% 50V
C8	1-136-173-11	S	FILM 0.47MF 5% 50V
C9	1-127-519-11	S	ELECT(SOLID) 100MF 20% 20V
C11	1-127-519-11	S	ELECT(SOLID) 100MF 20% 20V
C12	1-127-519-11	S	ELECT(SOLID) 100MF 20% 20V
C18	1-130-483-11	S	MYLAR 0.01MF 5% 50V
C19	1-131-583-11	S	TANTALUM 150MF20% 20V
C20	1-124-140-11	S	ELECT 220MF 20% 10V
C21	1-124-149-11	S	ELECT 220MF 20% 25V
C25	1-124-140-11	S	ELECT 220MF 20% 10V
C27	1-124-140-11	S	ELECT 220MF 20% 10V
C33	1-124-462-00	S	ELECT 10MF 20% 10V
C37	1-124-273-11	S	ELECT 3.3MF 20% 50V
C39	1-124-270-11	S	ELECT 0.47MF20% 50V
C40	1-124-499-11	S	ELECT 1MF 20% 50V
C42	1-124-168-11	S	ELECT 100MF 20% 16V
C43	1-124-462-00	S	ELECT 10MF 20% 10V
C44	1-124-462-00	S	ELECT 10MF 20% 10V
C47	1-124-462-00	S	ELECT 10MF 20% 16V
C48	1-124-267-11	S	ELECT 0.1MF 20% 50V
C51	1-127-519-11	S	ELECT(SOLID) 100MF 20% 20V
C56	1-162-886-11	S	CERAMIC 390PF 5% 50V
CN1	1-506-730-11	O	RECEPTACLE, 40P MALE
* D2 ⚠	8-719-118-38	S	1SZ46A
D3	8-719-982-04	S	ERB81-004
D4	8-719-200-23	S	11E2
D5	8-719-101-23	S	1SS123
D6	8-719-942-31	S	HZ3ALL
D7	8-719-911-55	S	U05G
D9	8-719-100-05	S	1S2837
D10	8-719-101-23	S	1SS123
D11	8-719-908-06	S	ERA81-005
D12	8-719-908-06	S	ERA81-005
D13	8-719-908-06	S	ERA81-005
D14	8-719-908-06	S	ERA81-005
D15	8-719-908-06	S	ERA81-005
D16	8-719-908-06	S	ERA81-005
D17	8-719-908-06	S	ERA81-005
D18	8-719-908-06	S	ERA81-005
D19	8-719-951-13	S	HZ5CLL
D20	8-719-951-13	S	HZ5CLL
D21	8-719-101-97	S	1SS97-1
D22	8-719-910-68	S	HZ6C2L
D23	8-719-100-05	S	1S2837
D24	8-719-100-05	S	1S2837
D26	8-719-951-13	S	HZ5CLL
D27	8-719-101-23	S	1SS123
D28	8-719-101-23	S	1SS123
D30	8-719-910-83	S	HZ18-3L
D31	8-719-815-55	S	1S1555
IC1	8-759-914-04	S	TL494CNS: TI
IC2	8-759-701-01	S	NJM2904M: JRC
IC3	8-759-701-01	S	NJM2904M: JRC
IC4	8-759-700-44	S	NJM2902M: JRC
IC5	8-759-605-18	S	CX518: SONY
IC6	8-759-701-01	S	NJM2904M: JRC
IC7	8-759-200-81	S	TC4053BF: TOSHIBA
L1	1-408-142-11	S	22.5μH
L2	1-408-549-11	S	150μH
L3	1-421-013-21	S	HOLIZONTAL CHOKE 25μH
L4	1-421-013-21	S	HOLIZONTAL CHOKE 25μH
L5	1-408-427-21	S	330μH
L6	1-408-427-21	S	330μH
L7	1-421-013-21	S	HOLIZONTAL CHOKE 25μH
L8	1-421-013-21	S	HOLIZONTAL CHOKE 25μH
Q3	8-729-113-34	S	2SB733-5
Q4	8-729-113-34	S	2SB733-5
Q8	8-729-100-66	S	2SC1623
Q9	8-729-113-34	S	2SB733-5
Q10	8-729-102-76	S	2SA812
Q11	8-729-177-33	S	2SD773-4
Q12	8-729-177-33	S	2SD773-4
Q13	8-729-162-44	S	2SB624-BV4
Q14	8-729-113-34	S	2SB733-5
Q15	8-729-177-33	S	2SD773-4

* These components are specified as **Safety Related Component** for UC only.

Ref No.	Parts No.	SP	Description
Q16	8-729-100-66	S	2SC1623
Q17	8-729-102-76	S	2SA812
Q18	8-729-102-76	S	2SA812
Q19	8-729-100-66	S	2SC1623
Q21	8-729-100-66	S	2SC1623
Q22	8-729-100-66	S	2SC1623
Q23	8-729-100-66	S	2SC1623
Q24	8-729-102-76	S	2SA812
Q26	8-729-159-64	S	2SD596
Q27	8-729-162-44	S	2SB624-BV4
Q28	8-729-162-44	S	2SB624-BV4
Q29	8-729-100-66	S	2SC1623
Q31	8-729-109-43	S	2SK94-X3
Q34	8-729-111-99	S	2SK591
Q35	8-729-159-64	S	2SD596
* R10 ⚠	1-214-576-00	S	METAL 6.2K 1% 1/8W
* R11	1-214-561-00	S	METAL 1.5K 1% 1/8W
* R25	1-214-590-00	S	METAL 24K 1% 1/8W
* R25.	1-214-569-00	S	METAL 3.3K 1% 1/8W
RV1	1-228-457-11	S	METAL 2K
* RV2 ⚠	1-228-456-11	S	METAL 1K
RV3	1-228-457-11	S	METAL 2K
RV4	1-228-475-11	S	METAL 20K
RV5	1-228-472-11	S	METAL 2K
S1	1-553-510-11	S	SLIDE
S2	1-570-857-11	S	SLIDE
T1	1-448-363-11	S	DC-DC CONVERTER

RG-20/20P BOARD

Ref No.	Parts No.	SP	Description
	A-7513-584-A	O	MOUNTED CIRCUIT BOARD "RG-20"
	A-7513-594-A	O	MOUNTED CIRCUIT BOARD "RG-20P"
C3	1-107-019-11	S	MICA 1PF±0.5PF 500V
C4	1-107-042-11	S	MICA 2.2PF±0.5PF 500V
IC1	8-759-200-79	S	TC4049BF: TOSHIBA
IC2	8-741-135-60	S	BX1356: SONY
IC3	8-759-200-81	S	TC4053BF: TOSHIBA
Q1	8-729-102-76	S	2SA812
Q2	8-729-102-76	S	2SA812
Q3	8-729-100-66	S	2SC1623
RV1	1-228-455-11	S	METAL 500
S1	1-570-609-11	S	TOGGLE
S2	1-570-608-11	S	TOGGLE
S3	1-570-988-11	S	TOGGLE
S4	1-570-839-11	S	SLIDE

SG-136/136P BOARD

Ref No.	Parts No.	SP	Description
	A-7513-622-A	O	MOUNTED CIRCUIT BOARD "SG-136"
	A-7513-623-A	O	MOUNTED CIRCUIT BOARD "SG-136P"
C8	1-162-886-11	S	CERAMIC 390PF 5% 50V (J,UC)
	1-162-879-11	S	CERAMIC 100PF 5% 50V (EK)
C17	1-131-378-21	S	TANTALUM 15MF 10% 10V
C32	1-162-872-11	S	CERAMIC 51PF 5% 50V (J,UC)
	1-162-674-11	S	CERAMIC 39PF 5% 50V (EK)
C33	1-162-872-11	S	CERAMIC 51PF 5% 50V (J,UC)
	1-162-674-11	S	CERAMIC 39PF 5% 50V (EK)
C38	1-162-883-11	S	CERAMIC 220PF 5% 50V
C43	1-107-210-11	S	MICA 22PF 5% 500V (J,UC)
	1-107-208-11	S	MICA 18PF 5% 500V (EK)
C47	1-162-871-11	S	CERAMIC 47PF 5% 50V
C49	1-102-951-21	S	CERAMIC 15PF 5% 50V
C51	1-163-253-00	S	CERAMIC 120PF 5% 50V (EK)
C54	1-131-376-21	S	TANTALUM 6.8MF 10% 10V
CN1	1-506-731-21	O	RECEPTACLE, 40P MALE
D1	8-719-101-23	S	1SS123
D2	8-719-101-23	S	1SS123
D3	8-719-101-23	S	1SS123
D4	8-719-921-12	S	HZ2BLL
D5	8-719-100-03	S	1S2835
D6	8-719-100-05	S	1S2837
D7	8-719-815-55	S	1S1555
D8	8-719-100-03	S	1S2835
D9	8-719-100-03	S	1S2835
IC1	8-757-930-11	S	CX7930A: SONY
IC2	8-759-907-21	S	CX7969: SONY
IC3	8-759-200-81	S	TC4053BF: TOSHIBA
IC4	8-759-200-79	S	TC4049BF: TOSHIBA
IC5	8-759-200-79	S	TC4049BF: TOSHIBA
IC6	8-759-204-93	S	TC50H001F: TOSHIBA
IC7	8-759-939-53	S	TL062ACPS: TI
IC8	8-741-151-60	S	SBX1516-01: SONY (J,UC)
	1-807-836-11	S	SEP(BX1337) (EK)
IC9	8-741-152-50	S	SBX1525-01: SONY (J,UC)
	8-741-134-00	S	BX1340: SONY (EK)
IC10	8-759-206-55	S	TC74HC4538F: TOSHIBA

Ref No.	Parts No.	SP	Description
IC11	8-741-133-80	S	BX1338: SONY
IC12	8-759-200-81	S	TC4053BF: TOSHIBA
IC13	8-741-133-91	S	BX1339A: SONY
IC14	8-759-929-21	S	TLC27L2PS: TI
L1	1-408-151-11	S	47μH
L2	1-408-151-11	S	47μH
L3	1-408-417-21	S	47μH
L4	1-408-417-21	S	47μH
L5	1-408-417-21	S	47μH
L6	1-408-170-11	S	18μH
L7	1-408-417-21	S	47μH
L8	1-408-150-11	S	22μH
L9	1-408-150-11	S	22μH
L10	1-408-417-21	S	47μH
L11	1-408-417-21	S	47μH
L12	1-408-417-21	S	47μH
L13	1-408-151-11	S	47μH
Q1	8-729-100-66	S	2SC1623 (J,UC)
Q2	8-729-102-76	S	2SA812
Q3	8-729-102-76	S	2SA812
Q4	8-729-102-76	S	2SA812
Q5	8-729-102-76	S	2SA812
Q6	8-729-175-72	S	2SC2757-T33
Q7	8-729-102-76	S	2SA812
Q8	8-729-100-66	S	2SC1623
Q9	8-729-102-76	S	2SA812
R33	1-215-473-11	S	METAL 150K 1% 1/6W
R40	1-216-679-91	S	METAL CHIP 15K 0.50% 1/10W
R47	1-249-421-11	S	CARBON 2.2K 5% 1/4W (J : 10001~10080) (UC: 10001~10118) (EK: 10001~10050)
R64	1-216-049-00	S	CHIP 1K 5% 1/10W
R67	1-216-663-11	S	METAL CHIP 3.3K 0.50% 1/10W
R68	1-216-699-11	S	METAL CHIP 100K 0.50% 1/10W
R69	1-215-461-00	S	METAL 47K 1% 1/6W
RV1	1-228-460-11	S	METAL 20K
RV2	1-228-475-11	S	METAL 20K (J,UC)
RV3	1-228-474-11	S	METAL 10K
RV4	1-228-475-11	S	METAL 20K
RV5	1-228-460-11	S	METAL 20K
S1	1-553-925-11	S	ROTARY
S2	1-570-850-11	S	SLIDE (J,UC)
S4	1-570-857-11	S	SLIDE
S5	1-570-857-11	S	SLIDE
S6	1-570-374-11	S	SLIDE
S7	1-570-857-11	S	SLIDE
X1	1-567-644-11	S	14.31818MHz (J,UC)
	1-567-654-11	S	17.734475MHz (EK)

Ref No.	Parts No.	SP	Description
SW-114 BOARD			
	1-618-176-11	0	PRINTED CIRCUIT BOARD "SW-114"
S1	1-553-739-21	S	KEY BOARD "VTR START"
SW-115A BOARD			
	1-618-175-12	0	PRINTED CIRCUIT BOARD "SW-115"
D1	8-719-910-98	S	HZ9C2L
D2	8-719-815-55	S	1S1555
D3	8-719-815-55	S	1S1555
D4	8-719-815-55	S	1S1555
R1	1-249-423-11	S	CARBON 3.3K 5% 1/4W
R2	1-249-429-11	S	CARBON 10K 5% 1/4W
R3	1-249-429-11	S	CARBON 10K 5% 1/4W
S1	1-554-356-11	S	TOGGLE "CAMERA/VTR"
S2	1-554-400-11	S	TOGGLE "GAIN"
S3	1-554-400-11	S	TOGGLE "OUTPUT/DCC"
S4	1-554-356-11	S	TOGGLE "WHT BAL"
SW-116 BOARD			
	1-618-177-11	0	PRINTED CIRCUIT BOARD "SW-116"
S1	1-554-395-11	S	TOGGLE "A W/B BAL"
SW-256 BOARD			
	1-623-749-11	0	PRINTED CIRCUIT BOARD "SW-256"
D1	8-719-815-55	S	1S1555
D2	8-719-815-55	S	1S1555
S1	1-554-396-11	S	TOGGLE "SHUTTER"

TG-30/30P BOARD

Ref No.	Parts No.	SP	Description
	A-7513-587-A	O	MOUNTED CIRCUIT BOARD "TG-30" (J,UC)
	A-7513-614-A	O	MOUNTED CIRCUIT BOARD "TG-30P" (EK)
C1	1-127-516-11	S	ELECT(SOLID) 220MF 20% 10V
C3	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C4	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C7	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C14	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C19	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C23	1-135-076-91	S	TANTAL. CHIP 1MF 20% 35V
C24	1-135-076-91	S	TANTAL. CHIP 1MF 20% 35V
C25	1-135-076-91	S	TANTAL. CHIP 1MF 20% 35V
C26	1-135-076-91	S	TANTAL. CHIP 1MF 20% 35V
C27	1-135-076-91	S	TANTAL. CHIP 1MF 20% 35V
C31	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C35	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C36	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C39	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C40	1-130-471-11	S	MYLAR 0.001MF 5% 50V
CN1	1-566-572-11	O	RECEPTACLE, 25P
CN2	1-506-759-11	O	RECEPTACLE, 15P
D1	8-719-100-05	S	1S2837
D2	8-719-100-05	S	1S2837
D3	8-719-100-03	S	1S2835
D4	8-719-100-03	S	1S2835
D5	8-719-100-03	S	1S2835
D6	8-719-100-03	S	1S2835
D7	8-719-100-03	S	1S2835
IC1	8-759-922-28	S	CX23047B: SONY
IC2	8-759-204-98	S	TC74HC08F: TOSHIBA
IC3	8-759-205-00	S	TC74HC14F: TOSHIBA
IC4	8-759-777-81	S	MB7054-P50N1: SONY (J,UC)
	8-759-777-82	S	MB7054-P50C1: SONY (EK)
IC5	8-759-141-56	S	CXD1116AQ: SONY
IC6	8-759-205-40	S	TC74HC4050F: TOSHIBA
IC7	8-759-206-55	S	TC74HC4538F: TOSHIBA
IC8	8-759-200-81	S	TC4053BF: TOSHIBA
IC9	8-759-200-81	S	TC4053BF: TOSHIBA
IC10	8-759-204-98	S	TC74HC08F: TOSHIBA
IC11	8-759-205-12	S	TC74HC157F: TOSHIBA
IC12	8-759-204-98	S	TC74HC08F: TOSHIBA
L1	1-408-397-21	S	1µH
Q1	8-729-175-72	S	2SC2757-T33
Q2	8-729-102-76	S	2SA812
Q3	8-729-102-76	S	2SA812
Q4	8-729-102-76	S	2SA812
R39	1-216-665-91	S	METAL CHIP 3.9K 0.50% 1/10W
R42	1-216-102-00	S	CHIP 160K 5% 1/10W (EK)
R52	1-216-665-91	S	METAL CHIP 3.9K 0.50% 1/10W
R53	1-216-665-91	S	METAL CHIP 3.9K 0.50% 1/10W
RV1	1-228-471-11	S	METAL 1K
X1	1-567-653-21	S	28.636MHz (J,UC)
	1-567-550-11	S	28.375MHz (EK)

VA-37A BOARD

Ref No.	Parts No.	SP	Description
	A-7513-617-A	O	MOUNTED CIRCUIT BOARD "VA-37A"
C1	1-124-270-11	S	ELECT 0.47MF 20% 50V
C6	1-163-125-00	S	CERAMIC CHIP 220PF 5% 50V
C17	1-102-965-21	S	CERAMIC 39PF 5% 50V
C28	1-163-125-00	S	CERAMIC CHIP 220PF 5% 50V
C38	1-101-884-21	S	CERAMIC 56PF 5% 50V
C41	1-124-255-11	S	ELECT 1MF 20% 50V
C46	1-131-379-00	S	TANTALUM 22MF 10% 6.3V
C62	1-101-880-21	S	CERAMIC 47PF 5% 50V
C64	1-124-255-11	S	ELECT 1MF 20% 50V
C69	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C70	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C80	1-130-483-11	S	MYLAR 0.01MF 5% 50V
C81	1-124-255-11	S	ELECT 1MF 20% 50V
C82	1-130-471-11	S	MYLAR 0.001MF 5% 50V
C84	1-124-255-11	S	ELECT 1MF 20% 50V
C89	1-124-284-11	S	ELECT 10MF 20% 16V
C91	1-124-284-11	S	ELECT 10MF 20% 16V
C93	1-124-284-11	S	ELECT 10MF 20% 16V
C102	1-124-270-11	S	ELECT 0.47MF 20% 50V
C103	1-124-270-11	S	ELECT 0.47MF 20% 50V
C105	1-101-888-00	S	CERAMIC 68PF 10%50V
C106	1-102-959-00	S	CERAMIC 22PF 10%50V
C107	1-162-877-11	S	CERAMIC 82PF 5% 50V
CN1	1-506-730-11	O	RECEPTACLE, 40P MALE

Ref No.	Parts No.	SP	Description
CV1	1-141-301-11	S	CERAMIC TRIMMER 35P
CV2	1-141-301-11	S	CERAMIC TRIMMER 35P
CV3	1-141-301-11	S	CERAMIC TRIMMER 35P
D1	8-719-101-97	S	1SS97-1
D3	8-719-800-76	S	1SS226
D4	8-719-101-97	S	1SS97-1
D5	8-719-800-76	S	1SS226
D6	8-719-101-22	S	1SS123
D7	8-719-101-97	S	1SS97-1
D8	8-719-800-76	S	1SS226
D10	8-719-101-23	S	1SS123
D11	8-719-100-05	S	1S2837
D13	8-719-100-05	S	1S2837
D14	8-719-101-97	S	1SS97-1
D15	8-719-101-97	S	1SS97-1
D16	8-719-101-97	S	1SS97-1
D30	8-719-100-03	S	1S2835
FL1	1-235-839-11	S	LOW PASS 9.1MHz
FL2	1-235-839-11	S	LOW PASS 9.1MHz
FL3	1-235-839-11	S	LOW PASS 9.1MHz
IC1	8-759-945-72	S	OP-07DPS: TI
IC2	1-807-415-11	S	BH-1210: SONY
IC3	1-807-417-12	S	BH-1212A: SONY
IC4	8-759-945-72	S	OP-07DPS: TI
IC5	1-807-415-11	S	BH-1210: SONY
IC7	8-759-945-72	S	OP-07DPS: TI
IC8	1-807-415-11	S	BH-1210: SONY
IC10	8-759-200-81	S	TC4053BF: TOSHIBA
IC11	8-759-200-90	S	TC4538BF: TOSHIBA
IC12	8-759-205-78	S	TC504013BF: TOSHIBA
IC13	8-759-939-53	S	TL062ACPS: TI
IC14	8-759-205-41	S	TC74HC4066F: TOSHIBA
IC15	8-759-200-81	S	TC4053BF: TOSHIBA
IC16	8-759-906-54	S	TL064CNS: TI
IC17	8-759-906-54	S	TL064CNS: TI
IC18	8-759-200-81	S	TC4053BF: TOSHIBA
IC19	8-759-906-54	S	TL064CNS: TI
IC20	8-759-200-81	S	TC4053BF: TOSHIBA
Q1	8-729-122-63	S	2SA1226
Q2	8-729-122-63	S	2SA1226
Q3	8-729-102-76	S	2SA812
Q4	8-729-175-72	S	2SC2757-T33
Q5	8-729-109-43	S	2SK94-X3
Q6	8-729-109-43	S	2SK94-X3
Q8	8-729-109-43	S	2SK94-X3
Q9	8-729-109-43	S	2SK94-X3
Q10	8-729-109-43	S	2SK94-X3
Q11	8-729-175-72	S	2SC2757-T33

Ref No.	Parts No.	SP	Description
Q12	8-729-122-63	S	2SA1226
Q13	8-729-122-63	S	2SA1226
Q14	8-729-102-76	S	2SA812-T1M6
Q15	8-729-175-72	S	2SC2757-T33
Q16	8-729-109-43	S	2SK94-X3
Q17	8-729-109-43	S	2SK94-X3
Q18	8-729-109-43	S	2SK94-X3
Q19	8-729-109-43	S	2SK94-X3
Q20	8-729-109-43	S	2SK94-X3
Q21	8-729-109-43	S	2SK94-X3
Q22	8-729-175-72	S	2SC2757-T33
Q23	8-729-122-63	S	2SA1226
Q24	8-729-122-63	S	2SA1226
Q25	8-729-102-76	S	2SA812
Q26	8-729-175-72	S	2SC2757-T33
Q27	8-729-109-43	S	2SK94-X3
Q28	8-729-109-43	S	2SK94-X3
Q29	8-729-109-43	S	2SK94-X3
Q30	8-729-109-43	S	2SK94-X3
Q31	8-729-109-43	S	2SK94-X3
Q32	8-729-175-72	S	2SC2757-T33
Q33	8-729-102-76	S	2SA812
Q34	8-729-102-76	S	2SA812
Q35	8-729-102-76	S	2SA812
Q36	8-729-102-76	S	2SA812
Q37	8-729-102-76	S	2SA812
Q39	8-729-102-76	S	2SA812
Q40	8-729-102-76	S	2SA812
Q41	8-729-109-43	S	2SK94-X3
Q42	8-729-100-66	S	2SC1623
Q43	8-729-109-43	S	2SK94-X3
Q44	8-729-100-66	S	2SC1623
Q45	8-729-122-63	S	2SA1226
Q46	8-729-122-63	S	2SA1226
Q47	8-729-122-63	S	2SA1226
Q48	8-729-100-66	S	2SC1623
Q49	8-729-109-43	S	2SK94-X3
Q50	8-729-122-63	S	2SA1226
R49	1-216-631-11	S	METAL CHIP 150 0.5% 1/10W
R50	1-216-635-11	S	METAL CHIP 220 0.5% 1/10W
R154	1-215-482-11	S	METAL 360K 1% 1/6W
R200	1-247-885-51	S	CARBON 180K 5% 1/4W
R235	1-215-471-11	S	METAL 120K 1% 1/6W
R236	1-215-477-11	S	METAL 220K 1% 1/6W
R237	1-215-471-11	S	METAL 120K 1% 1/6W
R240	1-249-439-11	S	CARBON 68K 5% 1/4W
R241	1-247-885-51	S	CARBON 180K 5% 1/4W
R242	1-249-439-11	S	CARBON 68K 5% 1/4W
R251	1-215-487-51	S	METAL 560K 1% 1/6W
R256	1-249-393-11	S	CARBON 10 5% 1/4W
R257	1-247-775-11	S	CARBON 4.7 5% 1/4W
R258	1-247-775-11	S	CARBON 4.7 5% 1/4W
R265	1-247-831-11	S	CARBON 1K 5% 1/4W

Ref No.	Parts No.	SP	Description
RV1	1-228-474-11	S	METAL 10K
RV2	1-228-472-11	S	METAL 2K
RV3	1-228-460-11	S	METAL 20K
RV4	1-228-459-11	S	METAL 10K
RV5	1-228-474-11	S	METAL 10K
RV6	1-228-472-11	S	METAL 2K
RV7	1-228-460-11	S	METAL 20K
RV8	1-228-459-11	S	METAL 10K
RV9	1-228-474-11	S	METAL 10K
RV10	1-228-472-11	S	METAL 2K
RV11	1-228-460-11	S	METAL 20K
RV12	1-228-459-11	S	METAL 10K
RV13	1-228-475-11	S	METAL 20K
RV14	1-228-475-11	S	METAL 20K
RV15	1-228-475-11	S	METAL 20K
RV16	1-228-462-11	S	METAL 100K
RV17	1-228-462-11	S	METAL 100K
RV18	1-228-462-11	S	METAL 100K
RV19	1-228-462-11	S	METAL 100K
RV20	1-228-462-11	S	METAL 100K
RV21	1-228-462-11	S	METAL 100K
RV22	1-228-462-11	S	METAL 100K
RV23	1-228-462-11	S	METAL 100K
RV24	1-228-462-11	S	METAL 100K
RV25	1-228-462-11	S	METAL 100K
RV26	1-228-462-11	S	METAL 100K
RV27	1-228-462-11	S	METAL 100K
RV28	1-228-457-11	S	METAL 2K
RV29	1-228-457-11	S	METAL 2K
RV30	1-228-457-11	S	METAL 2K
RV31	1-228-462-11	S	METAL 100K
RV32	1-228-462-11	S	METAL 100K
RV33	1-228-462-11	S	METAL 100K
RV34	1-228-462-11	S	METAL 100K
RV35	1-228-462-11	S	METAL 100K
RV36	1-228-462-11	S	METAL 100K
RV38	1-228-462-11	S	METAL 100K
RV39	1-228-462-11	S	METAL 100K
RV40	1-228-462-11	S	METAL 100K
RV43	1-228-460-11	S	METAL 20K
RV45	1-228-460-11	S	METAL 20K
RV46	1-228-460-11	S	METAL 20K
RV47	1-228-460-11	S	METAL 20K
RV48	1-228-465-11	S	METAL 1M
S1	1-570-857-11	S	SLIDE
S2	1-570-610-11	S	TOGGLE

Ref No.	Parts No.	SP	Description
CAMERA FRAME			
	1-464-814-12	S	CONVERTER CD-78
	1-937-212-21	0	VF HARNESS
	1-937-218-11	0	LENS HARNESS
CN101	1-565-051-11	0	RECEPTACLE, 20P FEMALE "VF"
CN102	1-562-221-21	S	RECEPTACLE, 12P FEMALE "LENS"
CN103	1-561-781-21	S	RECEPTACLE, BNC "TEST OUT"
CN104	1-565-050-11	0	RECEPTACLE, 50P MALE
CN105	1-562-855-11	0	RECEPTACLE, 6P MALE
	1-564-092-11	0	PLUG CONTACT
	1-561-518-00	0	RECEPTACLE, 6P FEMALE
	1-560-372-00	0	PLUG CONTACT
CN106	1-561-233-21	S	RECEPTACLE, 6P "REMOTE"

VIEWFINDER

CN-127 BOARD

Ref No.	Parts No.	SP	Description
	1-618-182-11	O	PRINTED CIRCUIT BOARD "CN-127"

LP-28 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-066-A	O	MOUNTED CIRCUIT BOARD "LP-28"
CN1	1-564-005-21	O	RECEPTACLE, 6P MALE
CN2	1-564-006-11	O	RECEPTACLE, 7P MALE
D1	8-719-812-43	S	TLG124A
D2	8-719-812-43	S	TLG124A
D3	8-719-812-43	S	TLG124A
D4	8-719-812-43	S	TLG124A
D5	8-719-812-41	S	TLR124
D6	8-719-812-44	S	TLO124
D7	8-719-812-43	S	TLG124A
D8	8-719-900-92	S	GL-9PR20
D9	8-719-900-92	S	GL-9PR20
D10	8-719-909-20	S	GL-9NG2
D11	8-719-909-20	S	GL-9NG2
R1	1-249-417-11	S	CARBON 1K 5% 1/4W

SW-80 BOARD

Ref No.	Parts No.	SP	Description
	1-612-778-11	O	PRINTED CIRCUIT BOARD "SW-80"
D1	8-719-101-97	S	1SS97-1
D2	8-719-815-55	S	1S1555
S1	1-554-922-11	S	TOGGLE (SHORT TOGGLE)

VF-26 BOARD

Ref No.	Parts No.	SP	Description
	A-7513-402-A	O	MOUNTED CIRCUIT BOARD "VF-26"
C15	1-106-363-00	S	MYLAR 0.0068MF 5% 100V
* C18 ⚠	1-136-287-11	S	FILM 0.0047MF 5% 100V
* C19	1-136-287-11	S	FILM 0.0047MF 5% 100V
	1-136-288-11	S	FILM 0.0051MF 5% 100V
	1-136-289-11	S	FILM 0.0056MF 5% 100V
	1-136-290-11	S	FILM 0.0062MF 5% 100V
	1-136-291-11	S	FILM 0.0068MF 5% 100V
	1-136-292-11	S	FILM 0.0075MF 5% 100V
	1-136-293-11	S	FILM 0.0082MF 5% 100V
	1-136-306-11	S	FILM 0.0039MF 5% 100V
	1-136-307-11	S	FILM 0.0043MF 5% 100V
C21	1-163-991-11	S	CERAMIC CHIP 0.0022MF 10% 500V
C22	1-123-384-11	S	ELECT 10MF 20% 100V
C23	1-162-870-11	S	CERAMIC 0.0022MF 10% 1KV
C24	1-130-815-11	S	FILM 0.015MF 5% 630V
C27	1-124-168-11	S	ELECT 100MF 20% 16V
C33	1-130-487-11	S	MYLAR 0.022MF 5% 50V
C37	1-130-481-11	S	MYLAR 0.0068MF 5% 50V
C38	1-136-287-11	S	FILM 0.0047MF 5% 100V
C39	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C42	1-131-362-21	S	TANTALUM 3.3MF 10% 20V
C44	1-130-479-11	S	MYLAR 0.0047MF 5% 50V
C47	1-163-125-00	S	CERAMIC CHIP 220PF 5% 50V
C49	1-124-168-11	S	ELECT 100MF 20% 16V
C50	1-124-124-00	S	ELECT 220MF 20% 6.3V
C53	1-163-991-11	S	CERAMIC CHIP 0.0022MF 10% 500V
C55	1-106-359-00	S	MYLAR 0.0047MF 5% 100V
C57	1-163-033-00	S	CERAMIC CHIP 0.022MF 10% 25V
C65	1-127-509-11	S	ELECT(SOLID) 3.3MF 20% 25V
CN1	1-564-004-11	O	RECEPTACLE, 5P
CN2	1-564-002-11	O	RECEPTACLE, 3P
CN3	1-564-003-11	O	RECEPTACLE, 4P
CN4	1-564-002-31	O	RECEPTACLE, 3P
CN5	1-506-472-21	O	RECEPTACLE, 7P
CN8	1-564-002-21	O	RECEPTACLE, 3P
D1	8-719-815-55	S	1S1555
D2	8-719-815-55	S	1S1555
D3	8-719-101-23	S	1SS123
D4	8-719-100-05	S	1S2837
D5	8-719-101-23	S	1SS123
D7	8-719-900-95	S	V09G
D8	8-719-901-19	S	V11N
D10	8-719-900-95	S	V09G
D11	8-719-901-19	S	V11N
D12	8-719-815-55	S	1S1555
D13	8-719-101-23	S	1SS123
D14	8-719-800-76	S	1SS226
IC1	8-759-300-28	S	HA11423MP: HITACHI
IC2	8-759-801-06	S	LB1423N: SANYO

Ref No.	Parts No.	SP	Description
L1	1-408-409-21	S	10µH
L2	1-408-406-21	S	5.6µH
L3	1-459-664-12	S	LINEARITY
L4	1-408-080-11	S	100µH
Q1	8-729-100-66	S	2SC1623
Q2	8-729-100-66	S	2SC1623
Q3	8-729-100-66	S	2SC1623
Q4	8-729-102-76	S	2SA812
Q5	8-729-102-76	S	2SA812
Q6	8-729-109-43	S	2SK94-X3
Q7	8-729-102-76	S	2SA812
Q8	8-729-800-32	S	2SC2362K
Q9	8-729-175-72	S	2SC2757-T33
Q10	8-729-800-32	S	2SC2362K
Q11	8-729-800-27	S	2SA1016K
Q12	8-729-100-66	S	2SC1623
Q13	8-729-301-87	S	2SD1083L
Q14	8-729-901-03	S	DTC144WK
Q15	8-729-901-03	S	DTC144WK
Q17	8-729-901-03	S	DTC144WK
Q18	8-729-901-03	S	DTC144WK
Q19	8-729-100-66	S	2SC1623
Q20	8-729-100-66	S	2SC1623
Q21	8-729-100-66	S	2SC1623
Q22	8-729-102-76	S	2SA812
Q23	8-729-102-76	S	2SA812
Q24	8-729-216-32	S	2SA1163
Q25	8-729-216-32	S	2SA1163
R33	1-215-487-11	S	METAL 560K 1% 1/6W
R44	1-214-466-11	S	METAL 2M 5% 1/4W
R45	1-214-467-11	S	METAL 3M 5% 1/4W
R85	1-215-490-11	S	METAL 750K 1% 1/6W
R86	1-215-490-11	S	METAL 750K 1% 1/6W
R97	1-215-493-11	S	METAL 1M 1% 1/6W
R98	1-247-775-11	S	CARBON 4.7 5% 1/4W
* RV1 ⚠	1-228-452-11	S	METAL 50
RV2	1-228-466-11	S	METAL 2M
RV3	1-228-466-11	S	METAL 2M
RV4	1-228-458-11	S	METAL 5K
RV5	1-228-458-11	S	METAL 5K
RV6	1-228-455-11	S	METAL 500
RV7	1-228-458-11	S	METAL 5K
RV8	1-228-454-11	S	METAL 200
RV9	1-228-464-11	S	METAL 500K
RV10	1-228-463-11	S	METAL 200K
RV11	1-228-461-11	S	METAL 50K
RV12	1-237-033-21	S	METAL 1K

Ref No.	Parts No.	SP	Description
S1	1-554-371-11	S	TACT
T1	1-446-106-12	S	HEATER PALS
* T2 ⚠	1-439-225-21	S	FLYBACK (VF)

VIEWFINDER FRAME

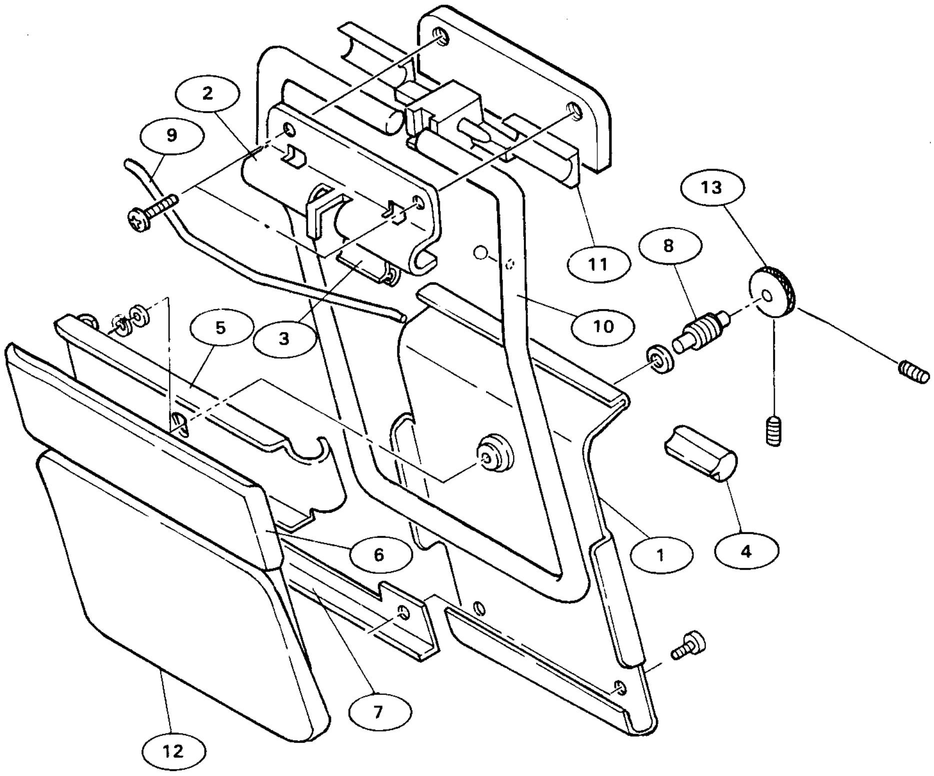
Ref No.	Parts No.	SP	Description
	1-451-208-21	S	DEFLECTION YOKE
⚠	1-464-168-22	S	MULTIPLIER
	1-546-043-11	S	PICTURE TUBE 1 1/2-INCH 40LB4
	1-558-609-12	S	CABLE SET, ROUND TYPE (M)
	1-934-936-21	S	CRT HARNESS
	1-937-304-12	O	VF MAIN HARNESS
	1-543-298-11	S	FERRITE BEAD
	1-939-242-11	O	VF EARTH HARNESS
	1-543-298-11	S	FERRITE BEAD
MIC1	8-814-221-00	S	MICROPHONE C-2011
PL101	1-518-337-00	S	LAMP, TALLY 12V 60mA
	1-517-077-00	S	HOLDER, LAMP
RV101	1-226-735-00	S	CARBON 2K
RV102	1-226-736-00	S	CARBON 250K
RV103	1-230-489-11	S	CARBON 20K
S102	1-554-924-11	S	TOGGLE "AUDIO/FILTER"

* These components are specified as **Safety Related Component** for UC only.

8-6. SUPPLIED ACCESSORIES

Parts No.	SP	Description
A-7401-157-A	S	PAD ASSY
A-7520-253-A	O	EXTENSION BOARD "EX-108"
X-3710-001-3	O	LID ASSY, UPPER
3-675-930-00	S	CAP (50-PIN SIDE), DUST
3-692-589-01	S	TOOL
3-711-766-01	S	COVER, MICROPHONE
3-711-780-01	S	COVER, RAIN
3-763-018-00	O	SCREW, BLIND
7-700-736-04	S	WRENCH, L-SHAPED HEX. (2.5mm)
7-721-140-60	S	WRENCH, L (3.0mm)

*** Exploded View for PAD ASSY** (A-7401-157-A)



No.	Parts No.	SP	Description
1	X-3678-615-2	O	SUPPORT ASSY, PAD
2	3-680-507-00	O	BRACKET (A), STAY
3	3-680-508-00	O	PAD (A), STOPPER
4	3-680-509-00	O	PAD (B), STOPPER
5	3-680-510-00	O	BRACKET, STAY
6	3-680-511-03	O	PAD (B)
7	3-680-512-00	O	CLAMP, STAY
8	3-680-515-00	O	SCREW, STAY ADJUST
9	3-680-517-00	O	SPRING
10	3-680-518-00	o	STAY, PAD
11	3-680-519-00	O	SUPPORT, STAY
12	3-680-520-03	O	PAD (A)
13	3-680-533-00	O	KNOB, ADJUSTMENT

SONY®

COLOR VIDEO CAMERA

BVP-50/50P

SUPPLEMENT-1

REPLACE THIS SUPPLEMENT-1 MANUAL TO YOUR OWN MANUAL.
TO UPDATE IT.

(CONTENTS)

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BETACAM™

MAINTENANCE MANUAL

BVP-50 (UC)
BVP-50P (EK)
9-967-111-01

Sony Corporation

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Printed in Japan
1988.01 08

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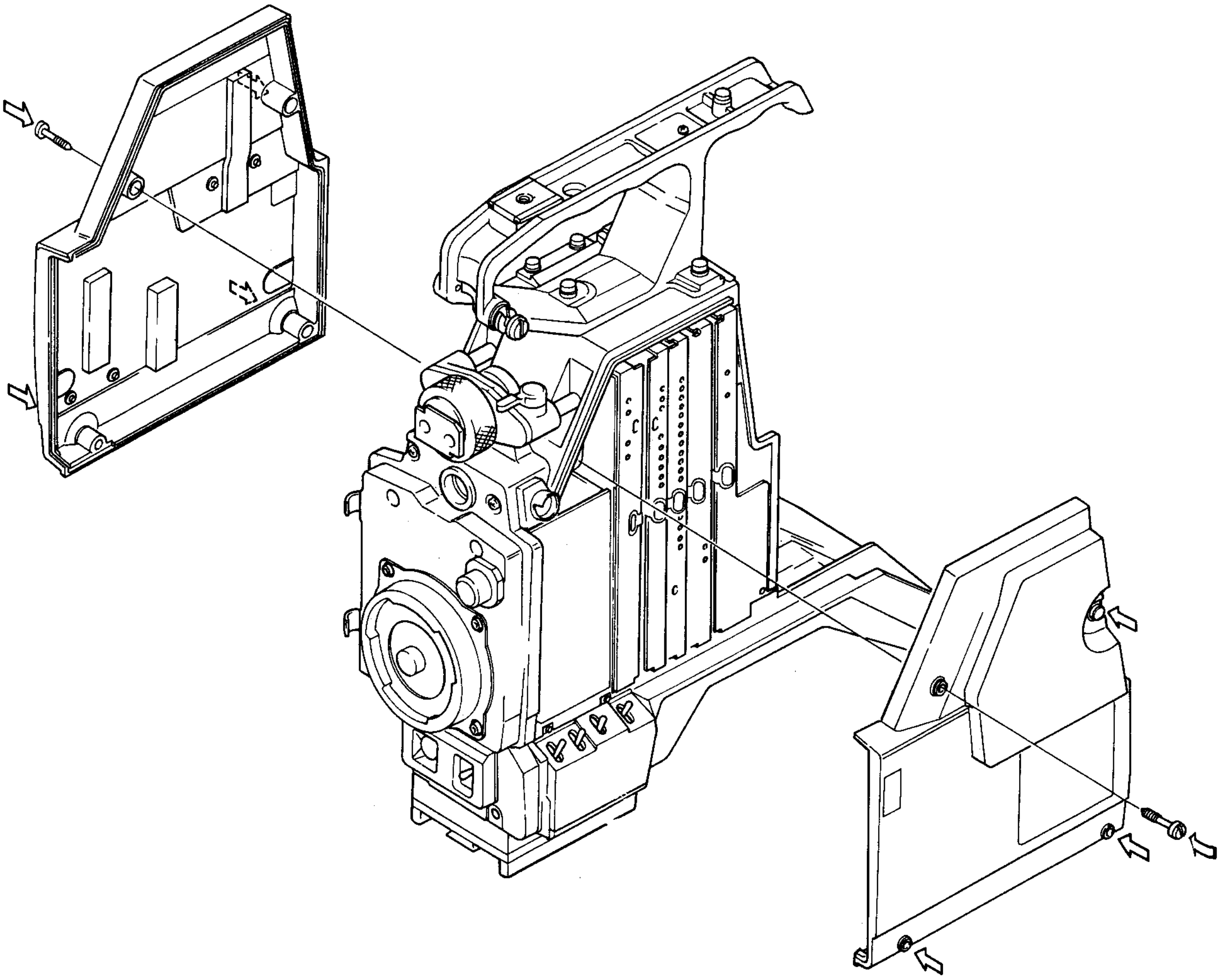
SECTION 2
REPLACEMENT OF MAIN PARTS

2-1. REMOVAL OF CABINET

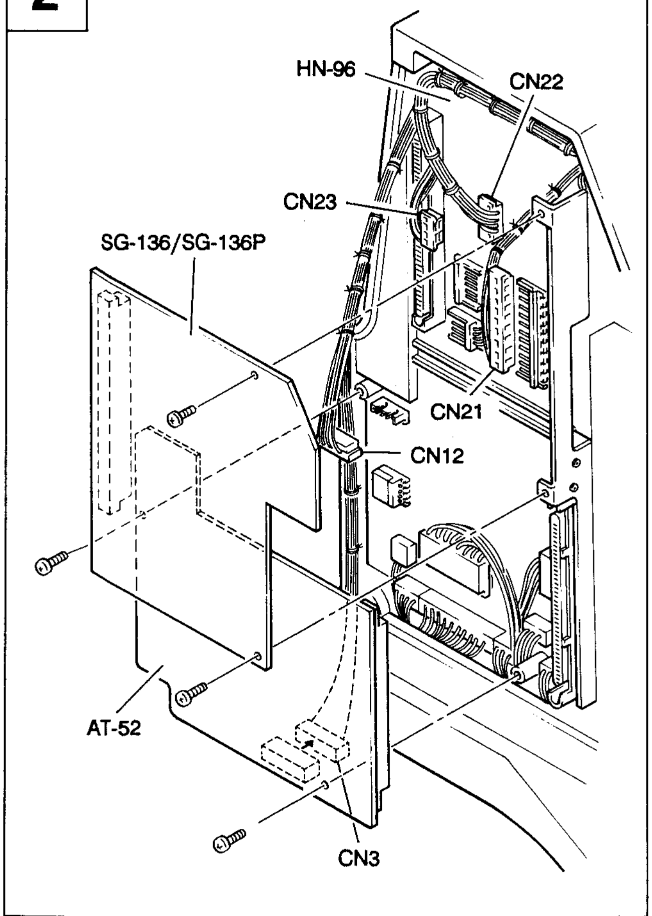
Remove eight screws and remove the side panels.



2-2. REPLACEMENT OF CCD UNIT

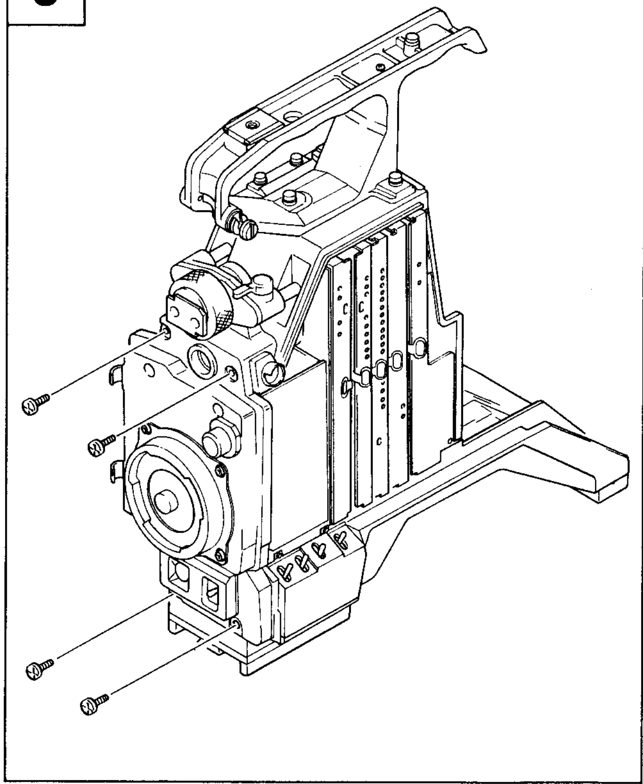
1. Remove the left and right side panels referring to Section 2-1 "CABINET OF REMOVAL".
2. Remove four screws and remove the AT-52 and SG-136/136P boards. Disconnect the connectors CN21, CN22, CN23 and CN12 on the HN-96 board and CN3 on the AT-52 board.

2

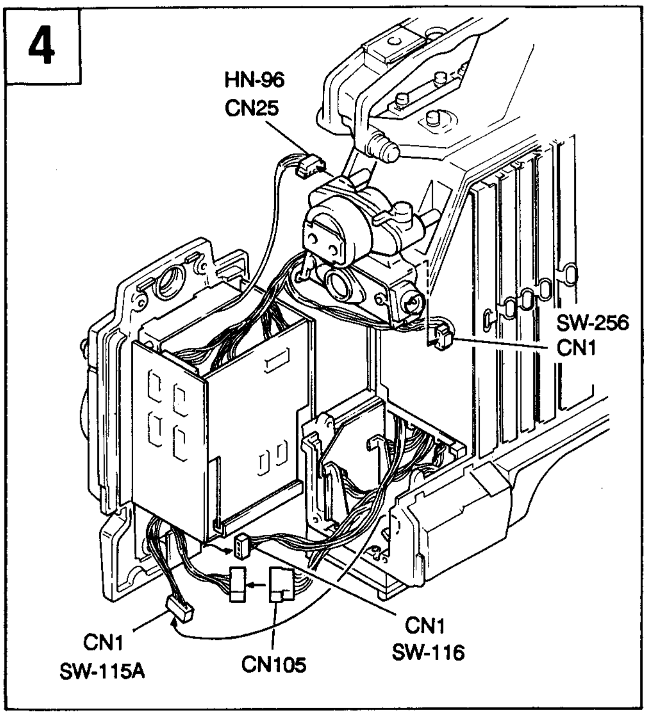

HN-96
CN22
CN23
SG-136/SG-136P
CN21
CN12
AT-52
CN3

3. Remove four screws and remove the front panel.

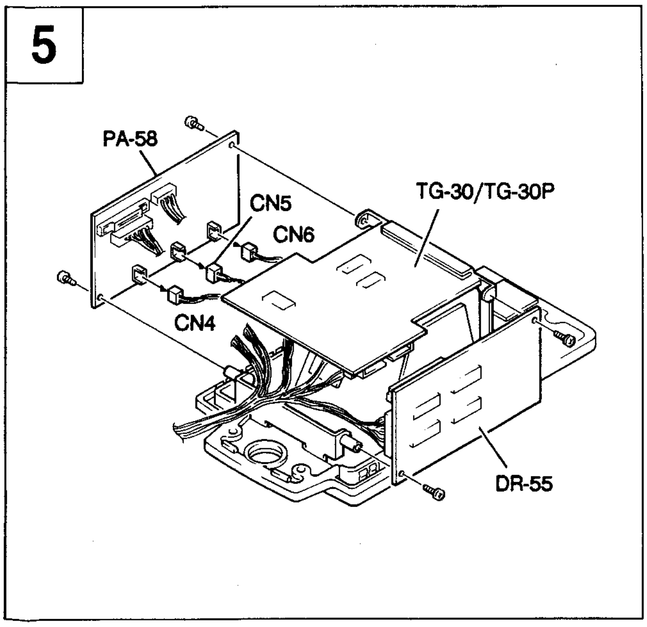
3



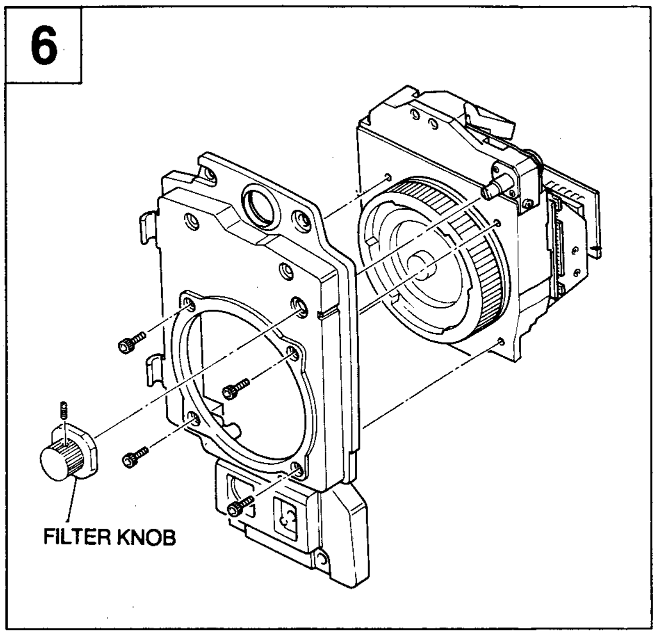
4. Disconnect the connectors CN25 on the HN-96 board, CN1 on the SW-256 board, CN1 on the SW-115A board and CN1 on the SW-116 board respectively. And disconnect the connector CN105 as shown below.


4
HN-96
CN25
SW-256
CN1
CN1
SW-115A
CN105
CN1
SW-116

5. Remove two screws securing the DR-55 board and remove two screws securing the PA-58 board. Disconnect the connectors CN4, CN5 and CN6 on the PA-58 board.


5
PA-58
CN5
CN6
TG-30/TG-30P
CN4
DR-55

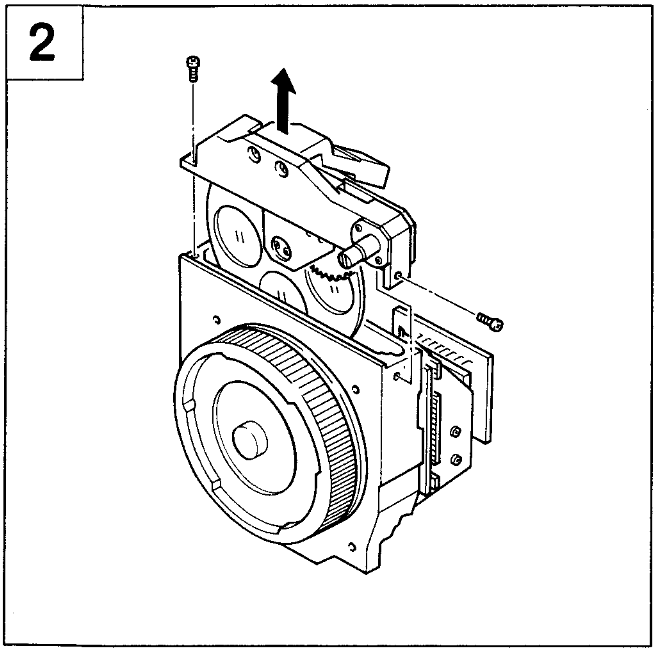
6. Loosen a setscrew for a filter knob with an L-shaped hexagonal wrench and remove the filter knob.
Remove four hexagon headed bolts and remove the CCD unit from the front panel.


6
FILTER KNOB

7. When a new CCD unit is installed, reverse the procedures for removal.

2-3. REPLACEMENT OF FILTER BLOCK

1. Carry out Steps 1 to 6 in Section 2-2 to remove the CCD unit.
2. Remove two screws and pull out the filter block in the direction of arrow.
   When removing the filter block from the prizm block, cover the upper part of the prizm block with cloth or paper to keep the dust out.

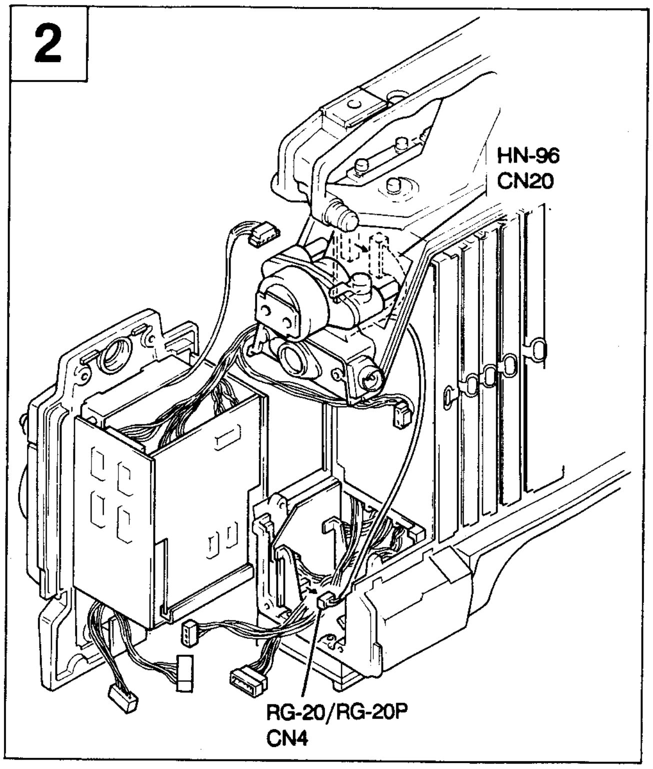


3. When a new filter block is installed, reverse the procedures for removal.

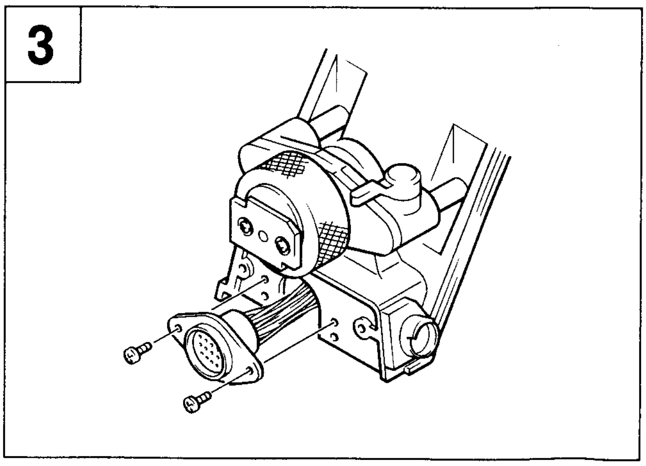
2-4. REPLACEMENT OF CONNECTORS

2-4-1. Replacement of VF Connector

1. Carry out Steps 1 to 4 in Section 2-2.
2. Disconnect the connectors CN20 on the HN-96 board and CN4 on the RG-20/20P board.



3. Remove two screws securing the VF connector to the camera and pull out the VF connector with harness attached.

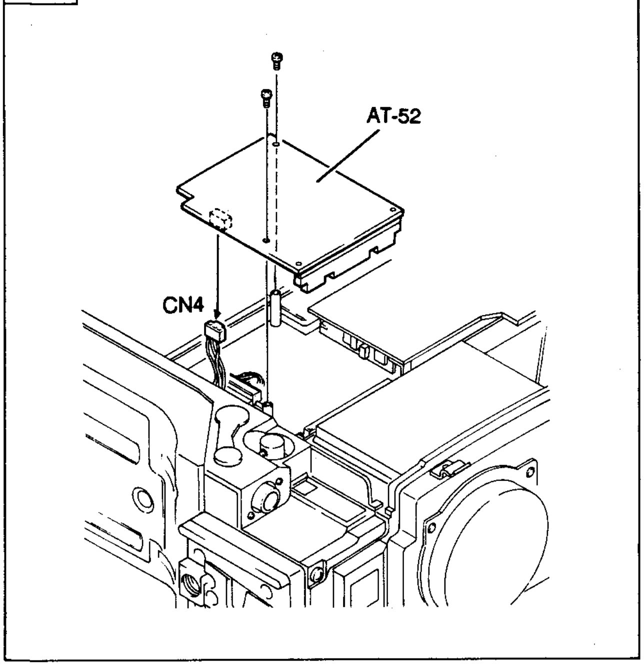


4. When a new VF connector is installed, reverse the procedures for removal.

2-4-2. Replacement of Lens Connector

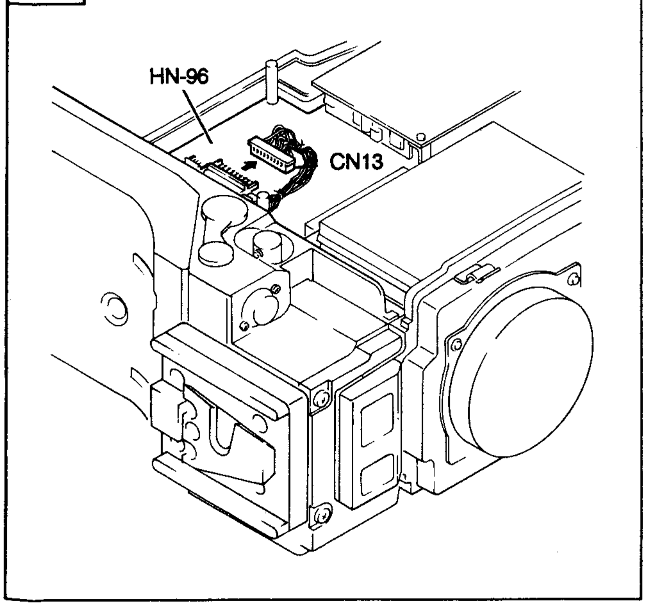
1. Remove the left side panel referring to Section 2-1 "REMOVAL OF CABINET".
2. Remove two screws and remove the AT-52 board. Disconnect the connector CN4 on the AT-52 board.

2



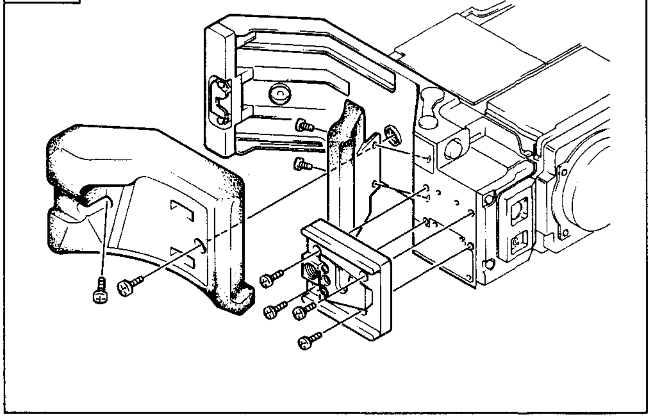
3. Disconnect the connector CN13 on the HN-96 board.

3



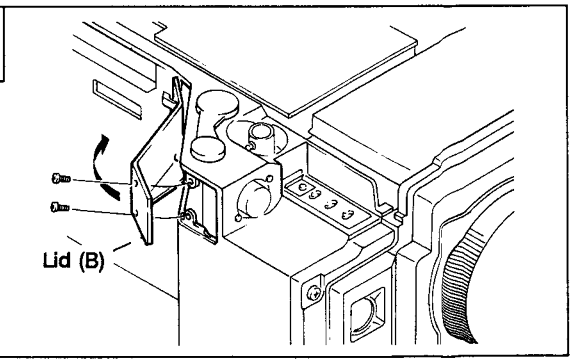
4. Lay the BVP-50/50P as illustrated. Remove the shoulder pad ass'y, shoulder pad (small) and V shoe ass'y.

4



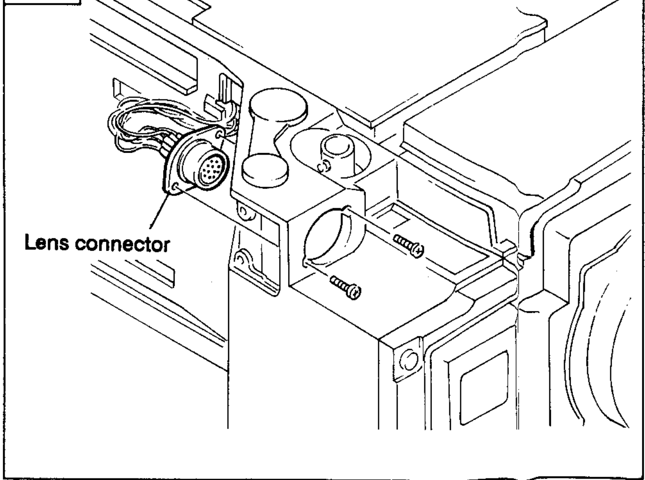
5. Remove two screws and remove the lid (B).

5



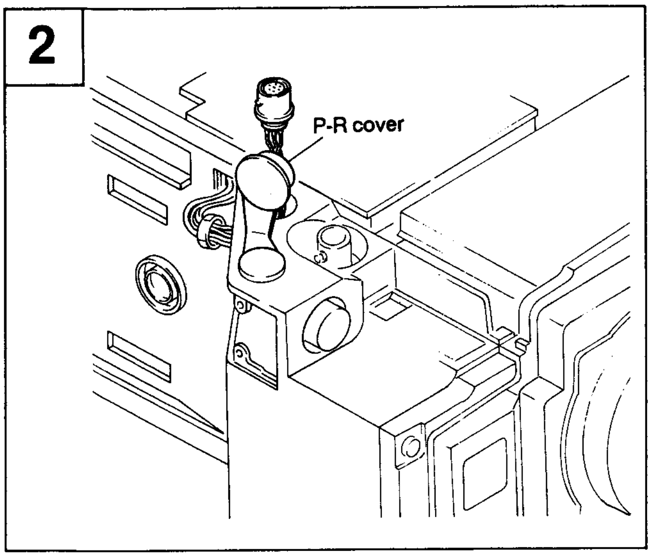
6. Remove two screws and remove the lens connector with harness attached.

6

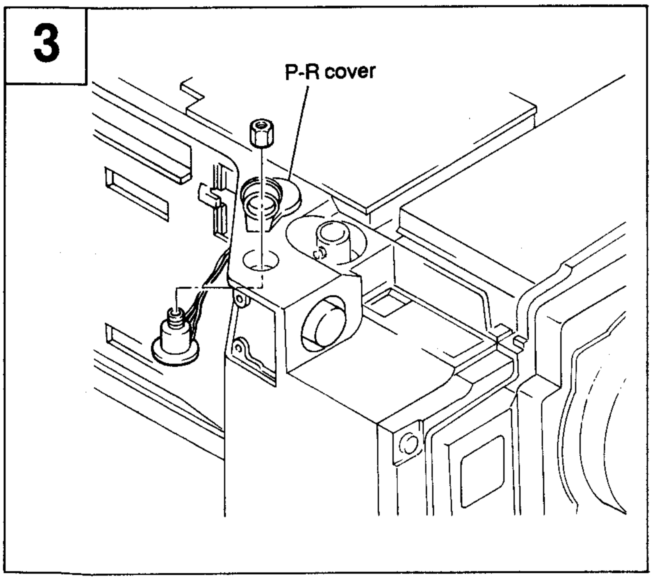


2-4-3. Replacement of Remote Connector and PEDESTAL Control

1. Carry out Steps 1 to 5 in Section 2-4-2.
2. Remove the P-R cover and remove the remote connector with harness attached.



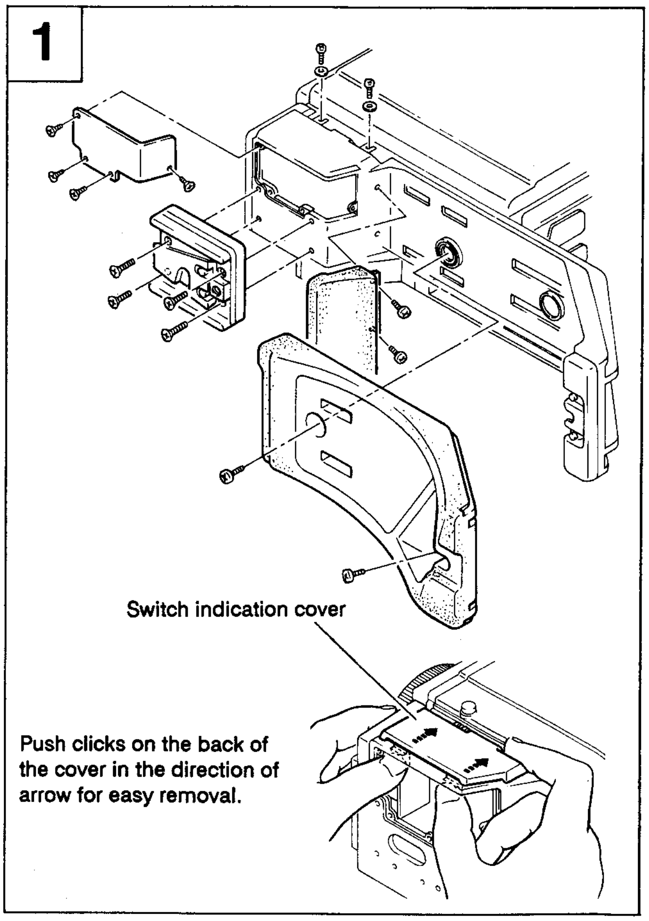
3. Remove the P-R cover and remove a nut and the PEDESTAL control.



2-5. REPLACEMENT OF FUNCTION SWITCHES

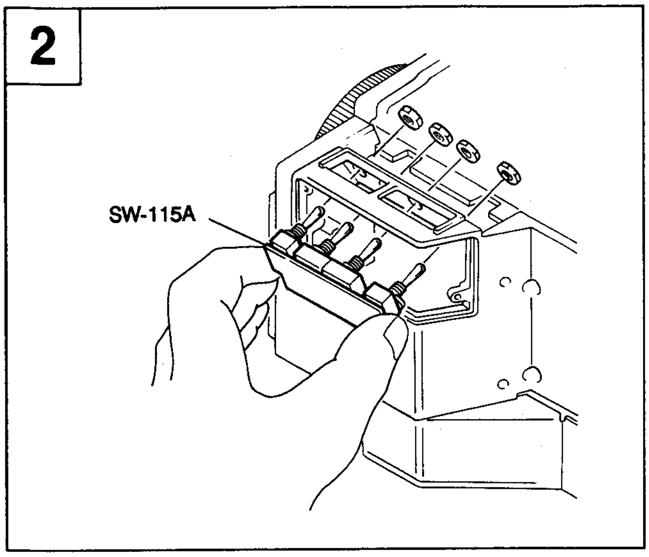
2-5-1. Replacement of the Switches on SW-115A Board

1. Lay the BVP-50/50P as illustrated. Remove the shoulder pad ass'y, sholder pad (small), V shoe ass'y and lid (A). Remove two screws and remove the switch indication cover.



Push clicks on the back of the cover in the direction of arrow for easy removal.

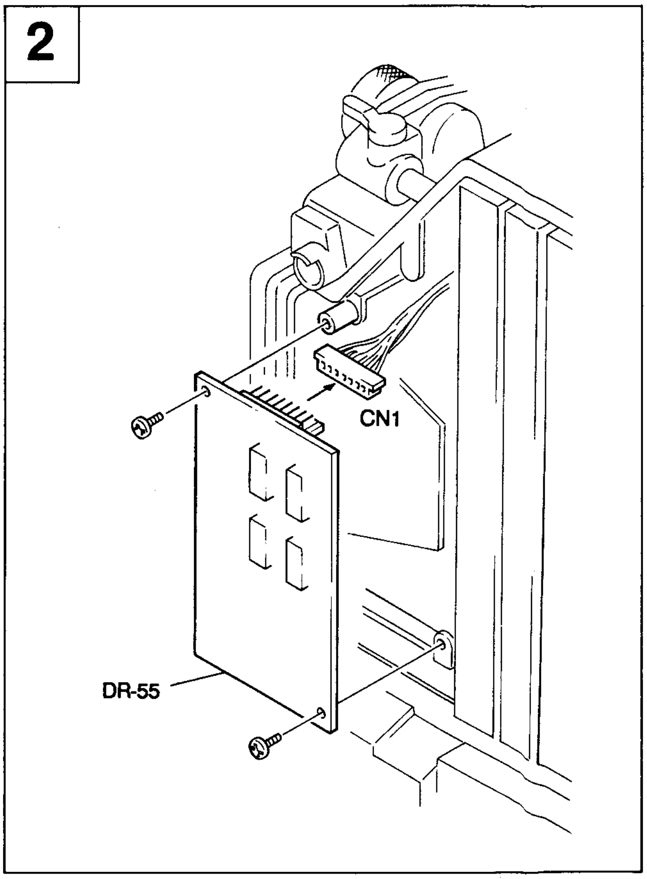
2. Remove four nuts securing the switches and pull out the SW-115A board with the switches mounted.



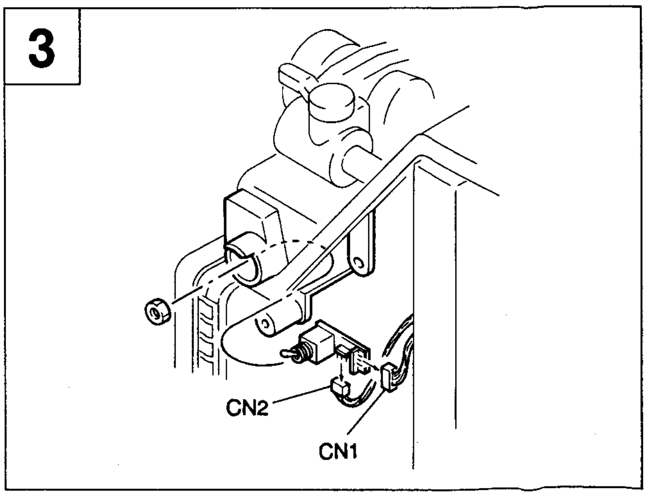
3. Desolder the switch for removal and replace it with a new one.

2-5-2. Replacement of Shutter Switch

1. Remove the right side panel referring to Section 2-1. "REMOVAL OF CABINET".
2. Remove two screws and disconnect the connector CN1 on the DR-55 board. Remove the DR-55 board.



3. Disconnect the connectors CN1 and CN2 on the SW-256 board. Remove the nut securing the switch and pull out the SW-256 board with the switch mounted.

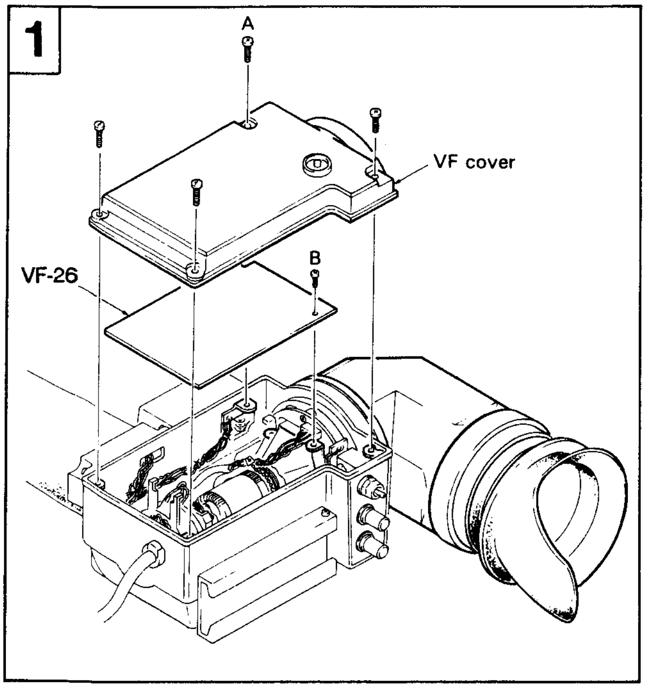


4. Desolder the switch for removal and replace it with a new one.

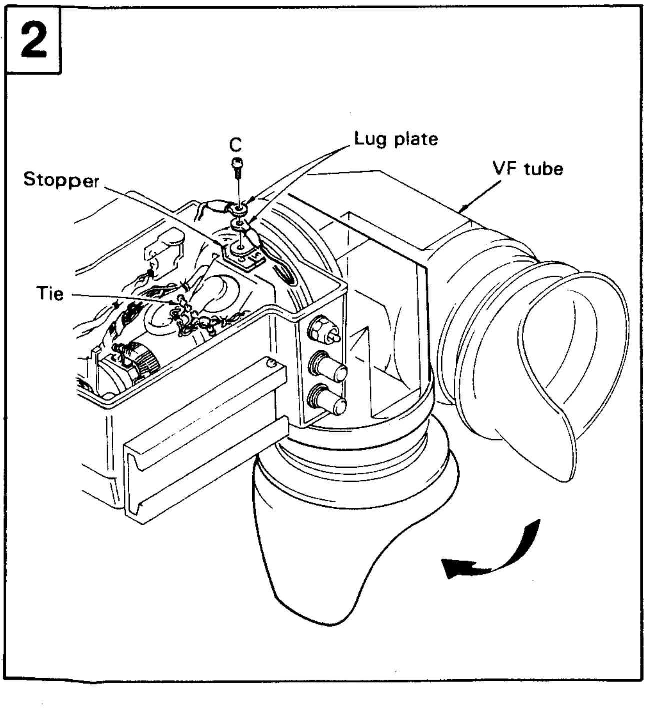
2-6. REPLACEMENT OF PARTS FOR VIEWFINDER

2-6-1. Replacement of CRT

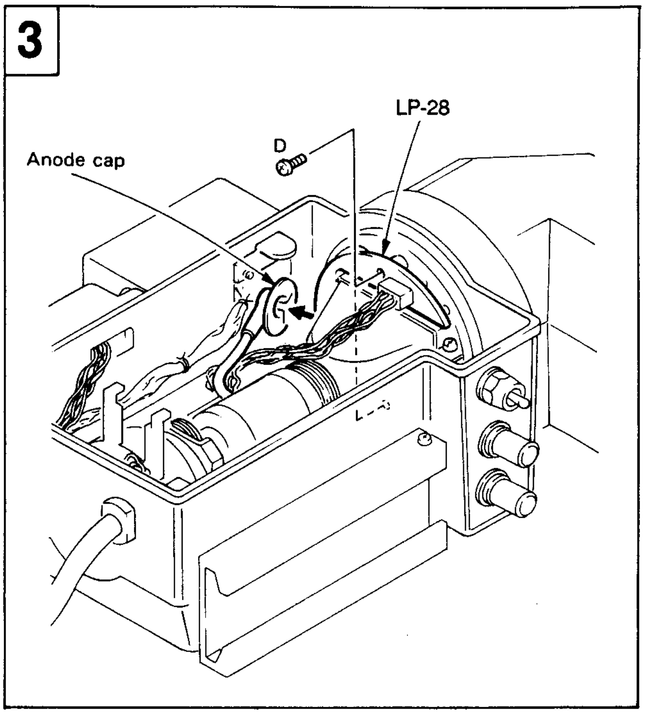
1. Remove four screws (A) and remove the VF cover. Next, remove one screw (B) and remove the VF-26 board.


1
A
VF cover
VF-26
B

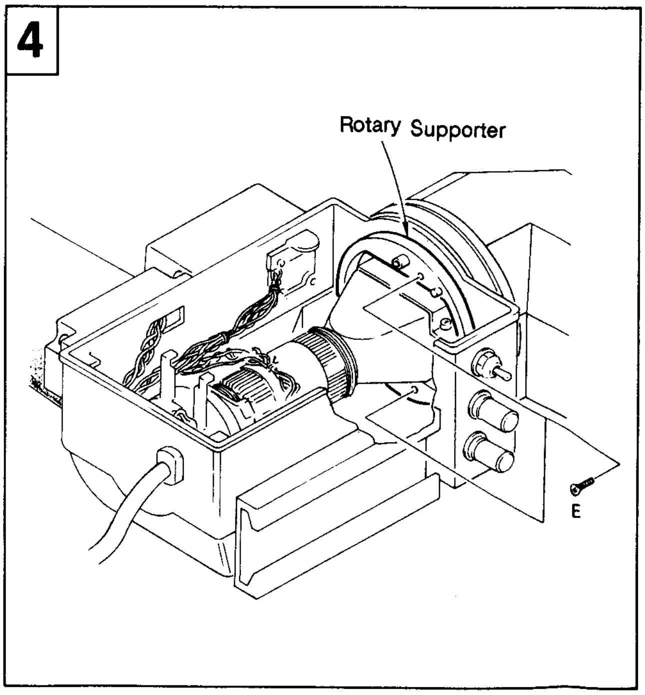
2. Turn the VF tube so that the anode cap of CRT is turned up.
   Remove the screw (C) and remove the stopper and two lug plates.
   Cut a tie.


2
C
Lug plate
VF tube
Stopper
Tie

3. Remove the anode cap from the CRT. Remove two fixing screws (D) and remove the LP-28 board.

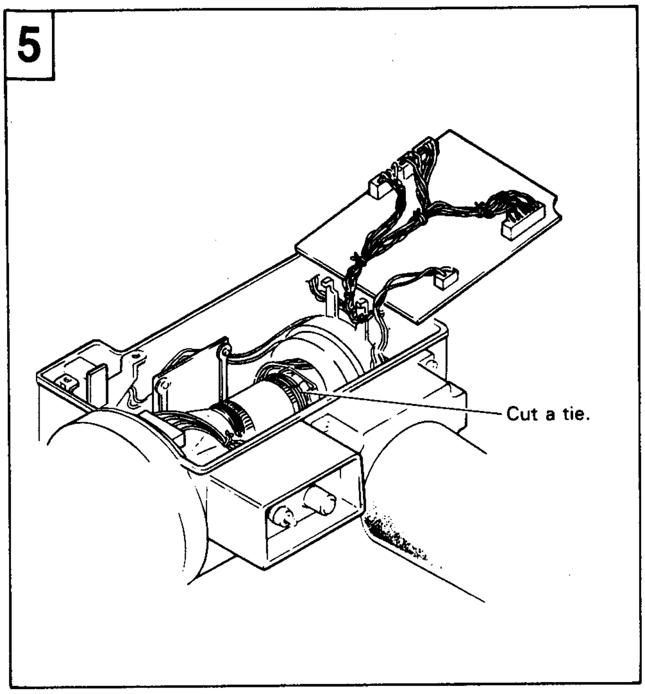

3
LP-28
D
Anode cap

4. Remove two fixing screws (E) and remove the rotary supporter.


4
Rotary Supporter
E

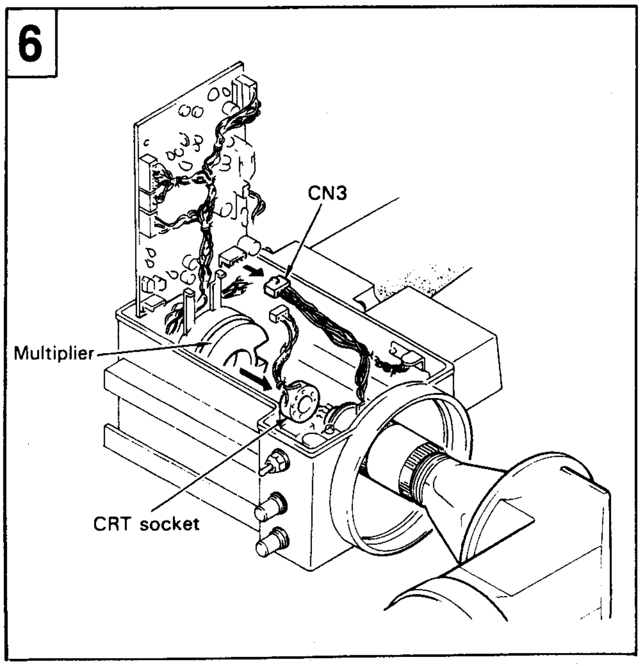
5. Cut a tie as shown in the figure.

5



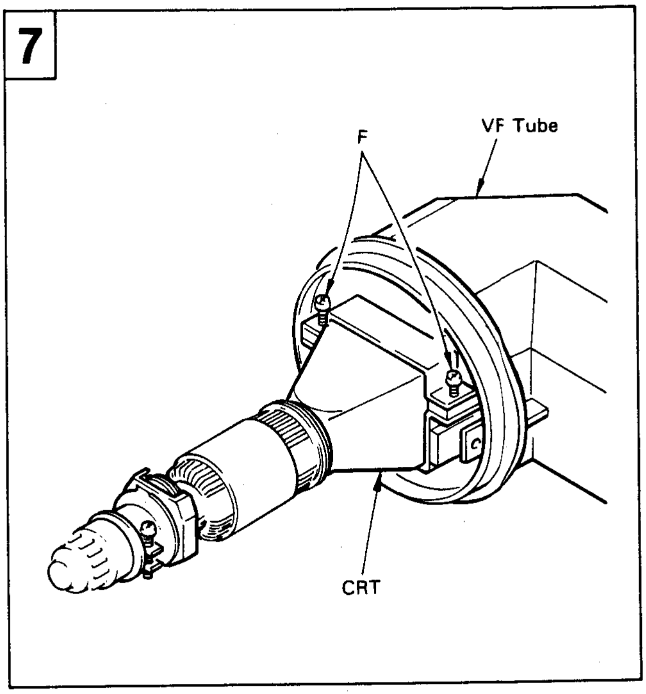
6. Extract the CRT from the multiplier. Disconnect the CRT socket from the CRT and disconnect the connector CN3 on the VF-26 board.

6


CN3
Multiplier
CRT socket

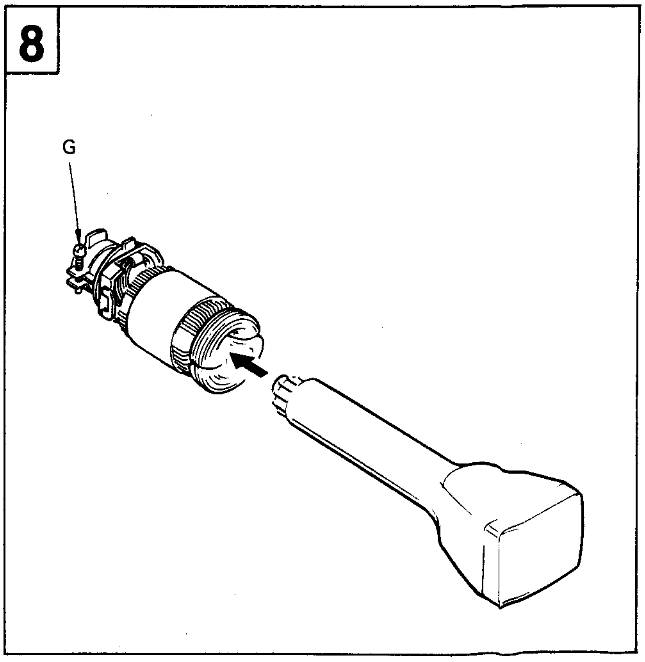
7. Loosen two fixing screws (F) and remove the CRT from the VF tube.

7


F
VF Tube
CRT

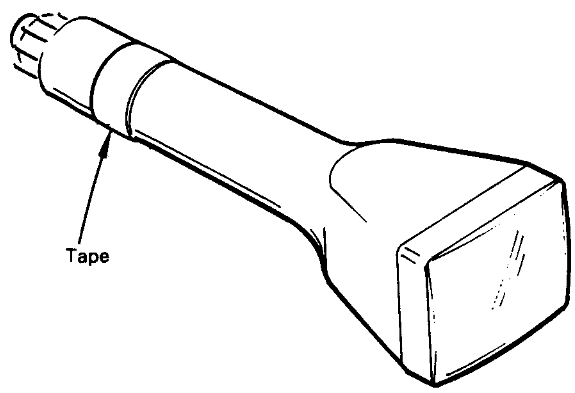
8. Loosen the screw (G) and pull out the deflection yoke from the CRT.

8



9. Tape around the neck of new CRT with a mending tape as shown in the figure.

9

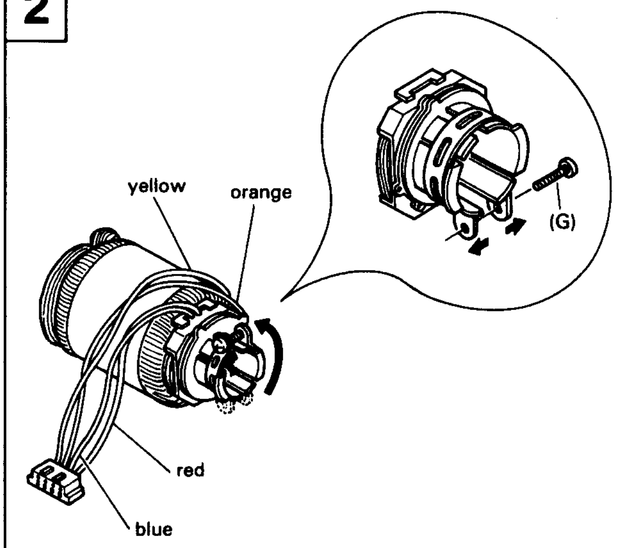


10. Install the CRT into the viewfinder with the reverse procedures for removal.
    Take enough care of harness arrangement. Wrong arrangement is apt to damage the harness. Refer to Section 2-6-2 "Replacement of Deflection Yoke" (Step 4 to Step 7) for proper arrangement of harness.

2-6-2. Replacement of Deflection Yoke

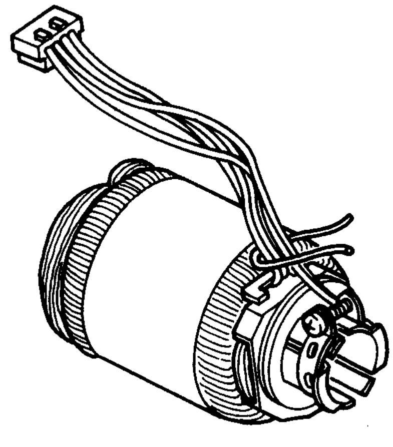
1. Carry out Steps 1 to 7 in Section 2-6-1 to remove the deflection yoke.
2. Remove the fixing screw (G) and turn the band 180 degrees. Arrange the harness as illustrated.

2



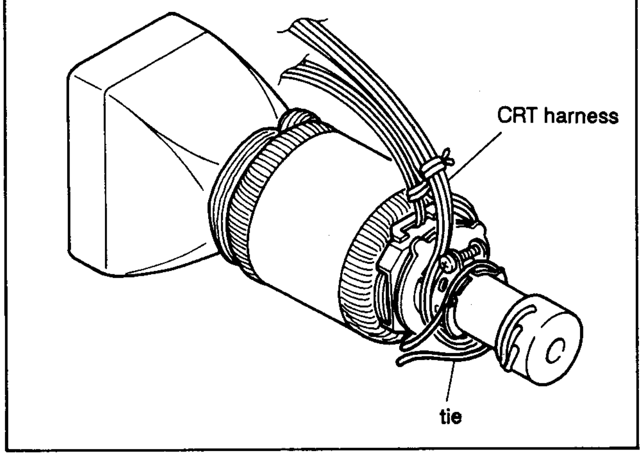
3. Bind around the bottom of four lead wires.

3



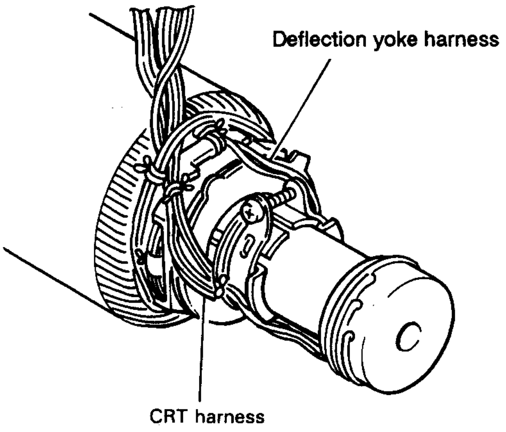
4. Insert the CRT into the deflection yoke. Arrange the CRT harness as illustrated and tie it up at the end of deflection yoke.

4


CRT harness
tie

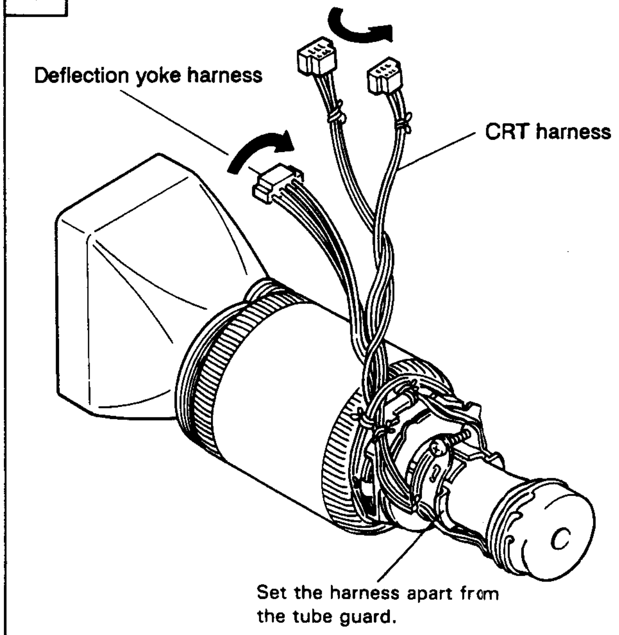
5. Bind the deflection yoke harness and the CRT harness to the deflection yoke with ties. First bind the deflection yoke harness then the CRT harness over the deflection harness.

5


Deflection yoke harness
CRT harness

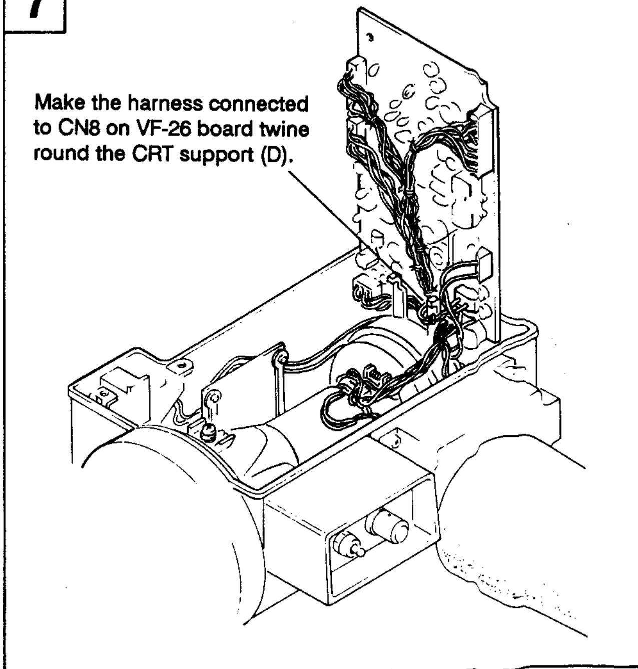
6. Twist the deflection yoke harness 2.5 or 3 turns counterclockwise, then connect it to the connector CN3 on the VF-26 board. Twist the CRT harness 5 or 6 turns counterclockwise, then connect them to the connectors CN2 and CN8. Twists should be dispersed on the average.

6


Deflection yoke harness
CRT harness
Set the harness apart from the tube guard.

7. When the CRT is installed, reverse the procedures for removal. Arrange each harness as shown in the figure.

7

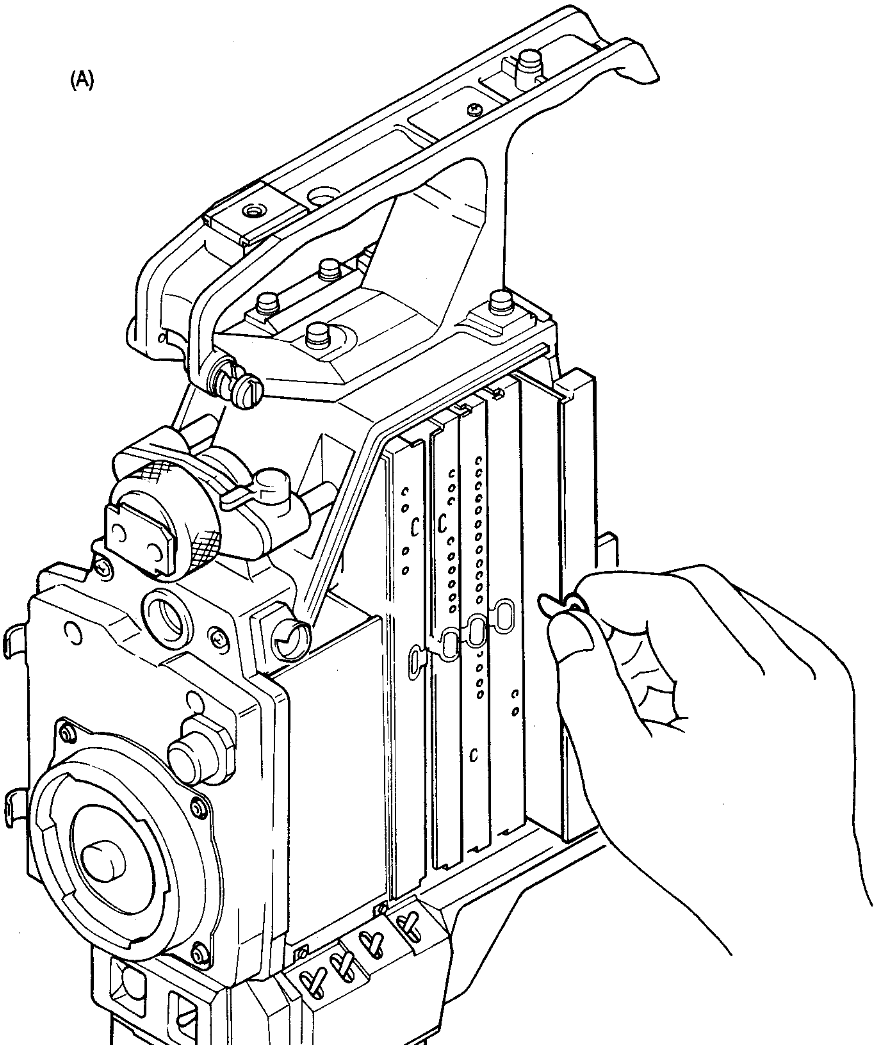

Make the harness connected to CN8 on VF-26 board twine round the CRT support (D).

2-7. TO EXTRACT THE BOARDS

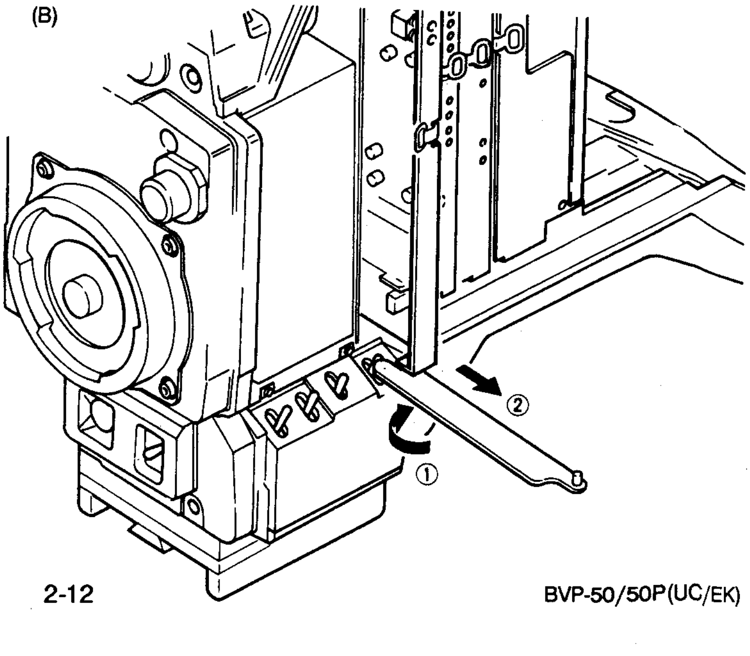
(A) Pull the pull lever attached to each board toward you.

(B) Put the board extractor (supplied accessary) in a hole at the bottom of the board. Move it in the direction of arrow ①, then pull in the direction of arrow ②.

(A)



(B)

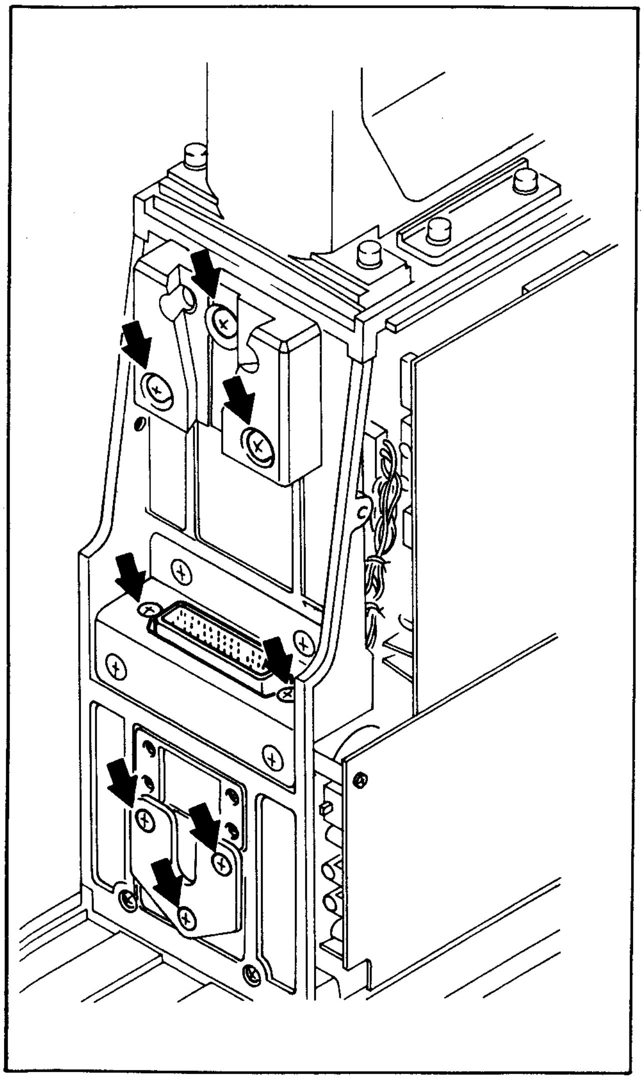


2-8. PRECAUTION ON REPLACEMENT OF VTR CONNECTOR (50P CONNECTOR)

The VTR connector (50-pin connector), camera shoe and chassis should be accurately positioned respectively. When the above parts are replaced, it is necessary to adjust using a high-precision special tool (CV positioning tool) so as to keep the accurate relation and to dock with any of BVV-5.

Avoid loosening or removing eight screws as shown in the figure.

For details, see "BETACAM CAMERA manual – Replacement of 50 pin connector–" prepared by Sony Corporation.

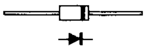


SECTION 6
SEMICONDUCTOR

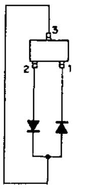
The circuit diagram of IC is obtained from the IC data book published by the manufacuturer.

TYPE	PAGE
11DQ04	6-2
11E2	6-2
1S1555	6-2
1S1555-S	6-2
1S2835	6-2
1S2837	6-2
1SS119	6-2
1SS123	6-2
1SS226	6-2
1SS97-1	6-2
1SZ46A	6-2
2SA1016K	6-2
2SA1163	6-2
2SA1226	6-2
2SA812	6-2
2SB624-V4	6-2
2SB733-5	6-2
2SC1623	6-2
2SC2362K	6-2
2SC2757-T33	6-2
2SC641K	6-2
2SD1083L	6-2
2SD596	6-2
2SD773-4	6-2
2SK591	6-2
2SK94-X3	6-2
2SK163-2	6-2
AN6701S	6-3
BH1210	6-3
BH1211	6-3
BH1212A	6-3
BH1213	6-3
BH1214	6-3
BH1215A	6-3
BH1216	6-4
BX1179	6-5
BX1338	6-5
BX1339A	6-5
BX1340	6-5
BX1356	6-5
CX20011	6-7
CX22017	6-7
CX23047B	6-7
CX518	6-10
CX7930A	6-11
CX7968A	6-12
CX7969	6-13
CXA1065M	6-6
CXD1116AQ	6-6
DTC144WK	6-2
ERA81-005	6-2
ERB81-004	6-2
GL-9NG2	6-2
GL-9PR20	6-2
HA11423MP	6-14
HD63P05Y0	6-21
HN27C64G-20	6-15
HZ18-3L	6-2
HZ2BLL	6-2
HZ3ALL	6-2
HZ3CLL	6-2
HZ4ALL	6-2
HZ5CLL	6-2
HZ6C2L	6-2
HZ7A2L	6-2
HZ9C2L	6-2
LB1423N	6-15
MB7054-P50C1	6-15
MB7054-P50N1	
MN1237AD	6-16
NJM1496M	6-16
NJM2902M	6-16
NJM2903M	6-16
NJM2904D	6-17
OP-07DPS	6-17
SBX1516-01	6-17
SBX1525-01	6-17
SEP(BX1337)	6-5
TC4011BF	6-17
TC4049BF	6-17
TC4051BF	6-18
TC4053BF	6-18
TC4069UBF	6-18
TC40H241F	6-17
TC4538BF	6-18
TC504013BF	6-18
TC50H001F	6-18
TC74HC08F	6-19
TC74HC14F	6-19
TC74HC157F	6-19
TC74HC4050F	6-19
TC74HC4066F	6-19
TC74HC4538F	6-19
TL062ACPS	6-20
TL064CNS	6-20
TL431CLPB	6-20
TL494CNS	6-20
TL7700CPS	6-20
TLC27L2PS	6-21
TLG124A	6-2
TLO124	6-2
TLR124	6-2
µPC311G2	6-20
U05G	6-2

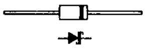
DIODE, TRANSISTOR



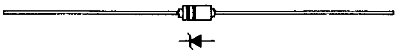
11E2
1S1555
1S1555S
1SS119



1SS123
1SS226

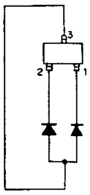


11DQ04
1SS97-1
ERB81-004



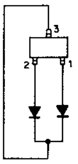
1SZ46A

TOP VIEW (SCALE 4/1)

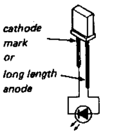


1S2835

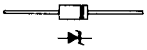
TOP VIEW (SCALE 4/1)



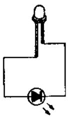
1S2837


cathode
mark
or
long length
anode

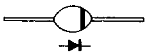
GL9NG2 ; YELLOWISH GREEN
GL9PR20 ; RED



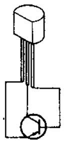
HZ ? ?ALL
HZ ? ?C ?
HZ ? ?L
HZ ? ?LL



TLG124A ; GREEN
TLO124 ; ORANGE
TLR124 ; RED

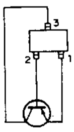


U05G
V09G
V11 ?

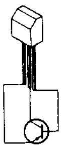


2SA1016K

TOP VIEW (SCALE 4/1)

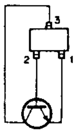


2SA1163
2SA1226
2SA812
2SB624

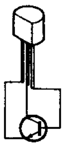


2SB733

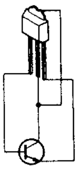
TOP VIEW (SCALE 4/1)



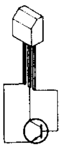
2SC1623
2SC2757
2SD596



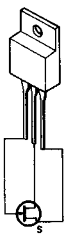
2SC2362K
2SC641K



2SD1083L

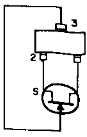


2SD773

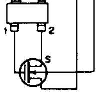


2SK591

TOP VIEW (SCALE 4/1)

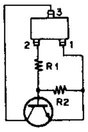


2SK94-T1X3



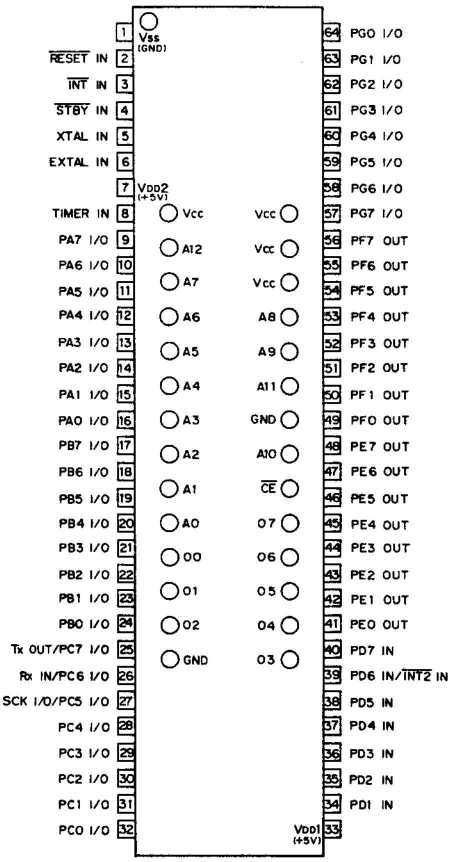
3SK163

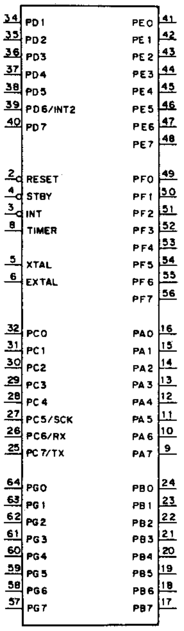
TOP VIEW (SCALE 4/1)



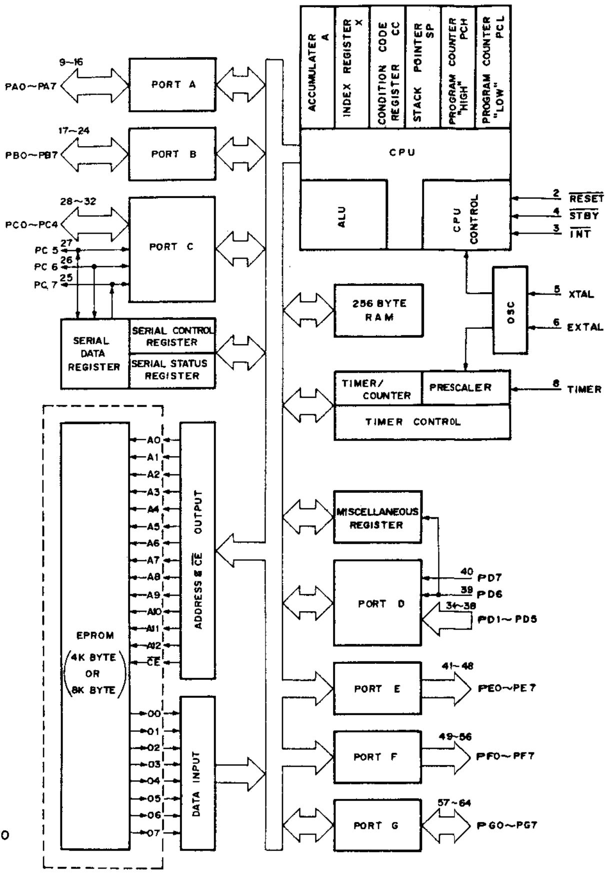
DTC144WK (R1=47K, R2=22K)

HD63P05Y0 (HITACHI) (INSTRUCTION CYCLE = $1\mu S$; f_{CK} = 4MHz)
C-MOS 8-BIT MICROCOMPUTER UNIT
— TOP VIEW —

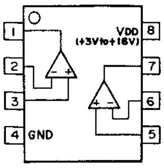

1 Vss (GND)
RESET IN 2
INT IN 3
STBY IN 4
XTAL IN 5
EXTAL IN 6
7 VDD2 (+5V)
TIMER IN 8
PA7 I/O 9
PA6 I/O 10
PA5 I/O 11
PA4 I/O 12
PA3 I/O 13
PA2 I/O 14
PA1 I/O 15
PA0 I/O 16
PB7 I/O 17
PB6 I/O 18
PB5 I/O 19
PB4 I/O 20
PB3 I/O 21
PB2 I/O 22
PB1 I/O 23
PB0 I/O 24
Tx OUT/PC7 I/O 25
Rx IN/PC6 I/O 26
SCK I/O/PC5 I/O 27
PC4 I/O 28
PC3 I/O 29
PC2 I/O 30
PC1 I/O 31
PC0 I/O 32
VDD1 (+5V) 33
34 PD1 IN
35 PD2 IN
36 PD3 IN
37 PD4 IN
38 PD5 IN
39 PD6 IN/INT2 IN
40 PD7 IN
41 PE0 OUT
42 PE1 OUT
43 PE2 OUT
44 PE3 OUT
45 PE4 OUT
46 PE5 OUT
47 PE6 OUT
48 PE7 OUT
49 PF0 OUT
50 PF1 OUT
51 PF2 OUT
52 PF3 OUT
53 PF4 OUT
54 PF5 OUT
55 PF6 OUT
56 PF7 OUT
57 PG7 I/O
58 PG6 I/O
59 PG5 I/O
60 PG4 I/O
61 PG3 I/O
62 PG2 I/O
63 PG1 I/O
64 PG0 I/O
Vcc
A12
A7
A6
A5
A4
A3
A2
A1
A0
O0
O1
O2
GND
Vcc
Vcc
Vcc
A8
A9
A11
GND
A10
CE
O7
O6
O5
O4
O3


34 PD1
35 PD2
36 PD3
37 PD4
38 PD5
39 PD6/INT2
40 PD7
2 RESET
4 STBY
3 INT
8 TIMER
5 XTAL
6 EXTAL
32 PC0
31 PC1
30 PC2
29 PC3
28 PC4
27 PC5/SCK
26 PC6/RX
25 PC7/TX
64 PG0
63 PG1
62 PG2
61 PG3
60 PG4
59 PG5
58 PG6
57 PG7
PE0 41
PE1 42
PE2 43
PE3 44
PE4 45
PE5 46
PE6 47
PE7 48
PF0 49
PF1 50
PF2 51
PF3 52
PF4 53
PF5 54
PF6 55
PF7 56
PA0 16
PA1 15
PA2 14
PA3 13
PA4 12
PA5 11
PA6 10
PA7 9
PB0 24
PB1 23
PB2 22
PB3 21
PB4 20
PB5 19
PB6 18
PB7 17

PA0 ~ PA7 ; 8-BIT I/O PORT A
PB0 ~ PB7 ; 8-BIT I/O PORT B
PC0 ~ PC7 ; 8-BIT I/O PORT C
PD1 ~ PD7 ; 7-BIT IN PORT D
PE0 ~ PE7 ; 8-BIT OUT PORT E
PF0 ~ PF7 ; 8-BIT OUT PORT F
PG0 ~ PG7 ; 8-BIT I/O PORT G
RESET ; RESET IN
STBY ; STANDBY IN
INT ; INTERRUPT IN
INT2 ; INTERRUPT IN
TIMER ; TIMER CONTROL IN
TIMER2 ; TIMER CONTROL IN
XTAL ; CRYSTAL
EXTAL ; EXTERNAL CRYSTAL IN
SCK ; SERIAL INTERFACE CLOCK I/O
RX ; SERIAL DATA RECEIVE
TX ; SERIAL DATA TRANSMIT


ACCUMULATER A
INDEX REGISTER X
CONDITION CODE REGISTER CC
STACK POINTER SP
PROGRAM COUNTER "HIGH" PCH
PROGRAM COUNTER "LOW" PCL
CPU
ALU
CPU CONTROL
2 RESET
4 STBY
3 INT
5 XTAL
6 EXTAL
OSC
8 TIMER
9~16
PA0~PA7
PORT A
17~24
PB0~PB7
PORT B
28~32
PC0~PC4
PC 5 27
PC 6 26
PC 7 25
PORT C
SERIAL DATA REGISTER
SERIAL CONTROL REGISTER
SERIAL STATUS REGISTER
256 BYTE RAM
TIMER/ COUNTER
PRESCALER
TIMER CONTROL
MISCELLANEOUS REGISTER
PORT D
40 PD7
39 PD6
34~38 PD1~PD5
PORT E
41~48 PE0~PE7
PORT F
49~56 PF0~PF7
PORT G
57~64 PG0~PG7
EPROM
(4K BYTE OR 8K BYTE)
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
CE
O0
O1
O2
O3
O4
O5
O6
O7
ADDRESS & CE OUTPUT
DATA INPUT

TLC27L2PS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
— TOP VIEW —


1
2
3
4 GND
8 VDD (+3V to +16V)
7
6
5

SECTION 8
SPARE PARTS

8-1. PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with ! on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "**accommodating the improved parts and/or engineering changes**" or "**standardization of genuine parts**". This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present". Regarding engineering parts and diagrams changes in our engineering department, refer SECTION 9. CHANGE INFORMATION.

3. **The parts marked with "S" in the SP column** of the exploded views and electical spare parts list are nomally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. **Abbreviation**

REF.No.	DESCRIPTION	REF.No.	DESCRIPTION	REF.No.	DESCRIPTION
BT	BATTERY	**FL**	FILTER	**RV**	VARIABLE RESISTOR
C	CAPACITOR	**IC**	IC	**S**	SWITCH
CN	CONNECTOR	**L**	INDUCTOR	**T**	TRANSFORMER
CP	COMBINATION PARTS	**LV**	VARIABLE INDUCTOR	**TH**	THERMISTOR
CV	VARIABLE CAPACITOR	**Q**	TRANSISTOR	**X**	OSCILLATOR
D	DIODE	**R**	RESISTOR		
DL	DELAY LINE	**RB**	RESISTOR BLOCK		

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

8-2. EXPLODED VIEW

[FRONT ASSY]

No.	**Parts No.**	**SP**	**Description**
1	A-7513-585-A	o	MOUNTED CIRCUIT BOARD "DR-55"
2	A-7513-586-A	o	MOUNTED CIRCUIT BOARD "PA-58"
3	A-7513-587-A	o	MOUNTED CIRCUIT BOARD "TG-30" (J,UC)
	A-7513-614-A	o	MOUNTED CIRCUIT BOARD "TG-30P" (EK)
4	A-7575-095-A	s	CCD UNIT (J,UC)
	A-7575-105-A	s	CCD UNIT (EK)
5	1-547-202-11	o	FILTER UNIT, OPTICAL
6	1-553-739-21	s	SWITCH, KEYBOARD "VTR START"
7	1-553-739-21	s	SWITCH, TOGGLE "A W/B BAL"
8	1-618-176-11	o	PRINTED CIRCUIT BOARD "SW-114"
9	1-618-177-11	o	PRINTED CIRCUIT BOARD "SW-116"
10	1-622-362-11	o	PRINTED CIRCUIT BOARD "CN-209"
11	2-290-031-00	s	SPACER (DIA. 2.7)
12	3-672-221-00	s	PACKING, CONTROL
13	3-678-629-00	s	LEVER, MOUNT
14	3-678-684-00	o	HOLDER, CABLE
15	3-699-048-01	s	CAP, MOUNT
16	3-710-024-01	o	PAÇKING, VF
17	3-710-025-02	o	GUARD (F), SWITCH
18	3-710-042-04	s	PANEL, FRONT
19	3-710-054-01	s	KNOB, FILTER
20	3-710-057-02	o	STAY (T), SHIELD PLATE
21	3-710-059-01	o	CUSHION
22	3-710-505-00	s	SETSCREW, DOUBLE POINT 3x3
23	3-711-705-01	o	CAP, DROP PROTECTION
24	3-711-710-01	o	RUBBER, SHIELD
25	3-711-714-01	o	SPRING
26	3-711-756-01	o	STAY (B2), SHIELD PLATE
27	3-711-757-01	o	SUPPORT
28	3-711-762-01	o	RAIL, TG GUIDE
29	3-884-053-00	s	RING (O)
30	9-911-841-xx	s	CUSHION

[CHASSIS BLOCK]

No.	Parts No.	SP	Description
1	A-7513-584-A	o	MOUNTED CIRCUIT BOARD "RG-20" (J,UC)
	A-7513-594-A	o	MOUNTED CIRCUIT BOARD "RG-20P" (EK)
2	A-7550-049-A	o	CHASSIS BLOCK ASSY, BASE
3	A-7612-298-A	s	SHOE ASSY, V
4	A-7612-311-A	o	SLIDE ASSY, VF (Except for J)
5	A-7612-312-A	s	PAD ASSY (2), SHOULDER
6	A-7612-321-A	s	PAD (SMALL) ASSY, SHOULDER
7	X-3710-026-1	o	STOPPER ASSY
8	X-3710-029-1	s	GUARD ASSY, SHUTTER
9	X-3710-038-1	o	CASE ASSY, SHIELD
10	X-3710-042-1	o	PLATE(2) ASSY, UPPER (UC,EK)
	X-3710-002-5	s	PLATE ASSY, UPPER (J)
11	1-223-165-00	s	RES, ADJ, WIREWOUND 10K "PEDESTAL"
12	1-464-812-12	s	CONVERTER, DC-DC (CD-78)
13	1-554-356-11	s	SWITCH, TOGGLE "CAMERA/VTR", "WHT BAL"
14	1-554-396-11	s	SWITCH, TOGGLE "SHUTTER"
15	1-554-400-11	s	SWITCH, TOGGLE "GAIN", "OUTPUT/DCC"
16	1-561-233-21	s	RECEPTACLE, 6P "REMOTE"
17	1-561-781-21	s	RECEPTACLE, BNC "TEST OUT"
18	1-562-221-21	s	RECEPTACLE, 12P "LENS"
19	1-565-050-11	o	RECEPTACLE, 50P
20	1-618-175-13	o	PRINTED CIRCUIT BOARD "SW-115"
21	1-623-749-12	o	PRINTED CIRCUIT BOARD "SW-256"
22	1-937-212-21	o	HARNESS (VF)
	1-565-051-11	s	RECEPTACLE, 20P "VF"
23	1-937-218-11	o	HARNESS (LENS)
24	2-990-375-11	s	BOLT M3x10, HEXAGON SOCKET (Except for J)
25	3-143-206-00	s	CUSHION A, STOPPER
26	3-641-622-00	s	SPRING, COMPRESSION
27	3-659-365-00	s	SPACER (4x3)
28	3-664-519-00	o	NUT (M4)
29	3-673-046-00	s	LEVER, LOCK (Except for J)
30	3-675-902-21	o	BRACKET (A), CONNECTOR
31	3-675-929-00	o	NUT (50P), PLATE
32	3-675-958-12	o	SHOE, C
33	3-675-976-00	o	CUSHION
34	3-682-760-01	o	SCREW (M7-0.75), ADJUSTMENT
35	3-687-116-01	o	WASHER (4), STOPPER
36	3-701-506-01	s	SETSCREW, DOUBLE POINT 3x4 (Except for J)
37	3-701-508-01	s	SETSCREW, DOUBLE POINT 3x6 (Except for J)
38	3-710-002-01	o	BRACKET
39	3-710-001-01	o	COVER, SW INDICATION
40	3-710-017-01	o	PLATE, PROTECTION
41	3-710-018-01	s	COLLAR, SLIDE
42	3-710-019-01	o	RING, LOCK (J)
43	3-710-026-03	o	PLATE, FIXED, RG-14
44	3-710-027-01	o	SHEET, BLIND
45	3-710-029-02	o	LID (B), B
46	3-710-030-01	o	LID (A), B
47	3-710-031-01	o	COVER, SWITCH
48	3-710-039-03	s	SHOE, SLIDE
49	3-710-047-03	o	PLATE, REAR
50	3-710-050-11	s	BOLT (M2.6x15), HEXAGON HOLE
51	3-710-092-01	o	FOOT, REAR
52	3-710-093-01	o	SPACER, SWITCH
53	3-711-703-01	o	STOPPER
54	3-711-704-01	o	COVER, RUBBER
55	3-711-710-01	o	RUBBER, SHIELD
56	3-711-727-01	o	SPRING, LEAF
57	3-711-753-01	o	COVER, INSULATING, CONVERTER
58	3-711-754-01	o	PLATE (2), INDICATION, RG
59	3-711-755-01	o	COVER, P-R
60	3-711-760-01	o	SPRING
61	3-711-765-01	s	BOLT(M3), HEXAGON SOCKET (J)
62	3-711-788-01	o	SPACER, P5
63	3-711-789-01	o	SPACER, REAR
64	3-711-790-01	o	SPACER (A) (Except for J)
65	3-711-791-01	o	ARM (Except for J)
66	3-711-792-01	o	SCREW (Except for J)
67	3-711-793-01	o	CUSHION, STOPPER (Except for J)
68	3-711-794-01	o	PIN, STOPPER (Except for J)
69	3-711-795-02	o	RING (B), LOCK (Except for J)
70	3-711-796-01	o	TABLE, FIXED, VF SHOE (Except for J)
71	3-711-797-01	o	TABLE, FIXED, VF SLIDE (Except for J)
72	3-716-390-01	o	GUARD, CAMERA SHOE
73	3-716-391-01	o	WEDGE, MOUNTING
74	3-716-392-01	s	SHOE, CAMERA
75	3-717-823-01	s	COVER, BNC
76	3-720-919-01	o	RUBBER, LOCK RING (Except for J)
77	4-904-818-01	s	BOLT (3x25), HEXAGON HOLE (Except for J)

[BOARD BLOCK]

No.	Parts No.	SP	Description
1	A-7513-394-A	o	MOUNTED CIRCUIT BOARD "PR-78"
2	A-7513-615-A	o	MOUNTED CIRCUIT BOARD "IE-21" (J,UC)
	A-7513-616-A	o	MOUNTED CIRCUIT BOARD "IE-21P" (EK)
3	A-7513-617-A	o	MOUNTED CIRCUIT BOARD "VA-37A"
4	A-7513-618-A	o	MOUNTED CIRCUIT BOARD "EN-69" (J,UC)
	A-7513-619-A	o	MOUNTED CIRCUIT BOARD "EN-69P" (EK)
5	A-7513-620-A	o	MOUNTED CIRCUIT BOARD "PS-163"
6	A-7513-621-A	o	MOUNTED CIRCUIT BOARD "HN-96"
7	A-7513-622-A	o	MOUNTED CIRCUIT BOARD "SG-136" (J,UC)
	A-7513-623-A	o	MOUNTED CIRCUIT BOARD "SG-136P" (EK)
8	A-7513-624-A	o	MOUNTED CIRCUIT BOARD "AT-52"
9	X-3710-003-6	o	HANDLE ASSY
10	X-3710-005-5	s	PANEL ASSY, RIGHT
11	X-3710-007-1	o	PLATE ASSY, SHIELD, EN
12	X-3710-032-1	s	PLATE ASSY, LEFT
13	X-3710-037-1	o	SUSPENSION ASSY (C)
14	2-277-468-01	o	PLATE, ORNAMENTAL, CAMERA SHOE
15	2-352-317-01	o	CUSHION, PCB
16	3-657-700-00	s	BRACKET, ACCESSORY
17	3-657-705-00	s	BOLT, HEXAGON HOLE
18	3-657-705-21	s	BOLT, HEXAGON HOLE (M4x15)
19	3-673-018-11	s	SCREW, BLIND
20	3-678-607-00	o	LABEL, FILTER
21	3-687-116-01	o	WASHER (4), STOPPER
22	3-701-439-11	s	WASHER
23	3-710-015-01	o	LID, HANDLE
24	3-710-016-02	s	SCREW (M4x18), LID
25	3-710-032-01	s	PAD
26	3-710-033-02	o	PLATE, SHIELD, PC BOARD
27	3-710-040-02	o	GUIDE (B)
28	3-710-041-01	o	RAIL (T), GUIDE
29	3-710-044-01	o	HANDLE
30	3-710-053-01	o	VALVE, ADJUSTMENT
31	3-710-076-01	o	CUSHION
32	3-711-706-01	o	NET
33	3-711-710-01	o	RUBBER, SHIELD
34	3-711-775-01	o	LEVER, PULL
35	3-711-781-02	o	LABEL, PC BOARD
36	3-711-783-01	o	LABEL, (SG), PC BOARD
37	3-711-798-01	o	LABEL, (AT-2), PC BOARD
38	4-889-014-00	o	CUSHION, PCB

[VIEWFINDER]

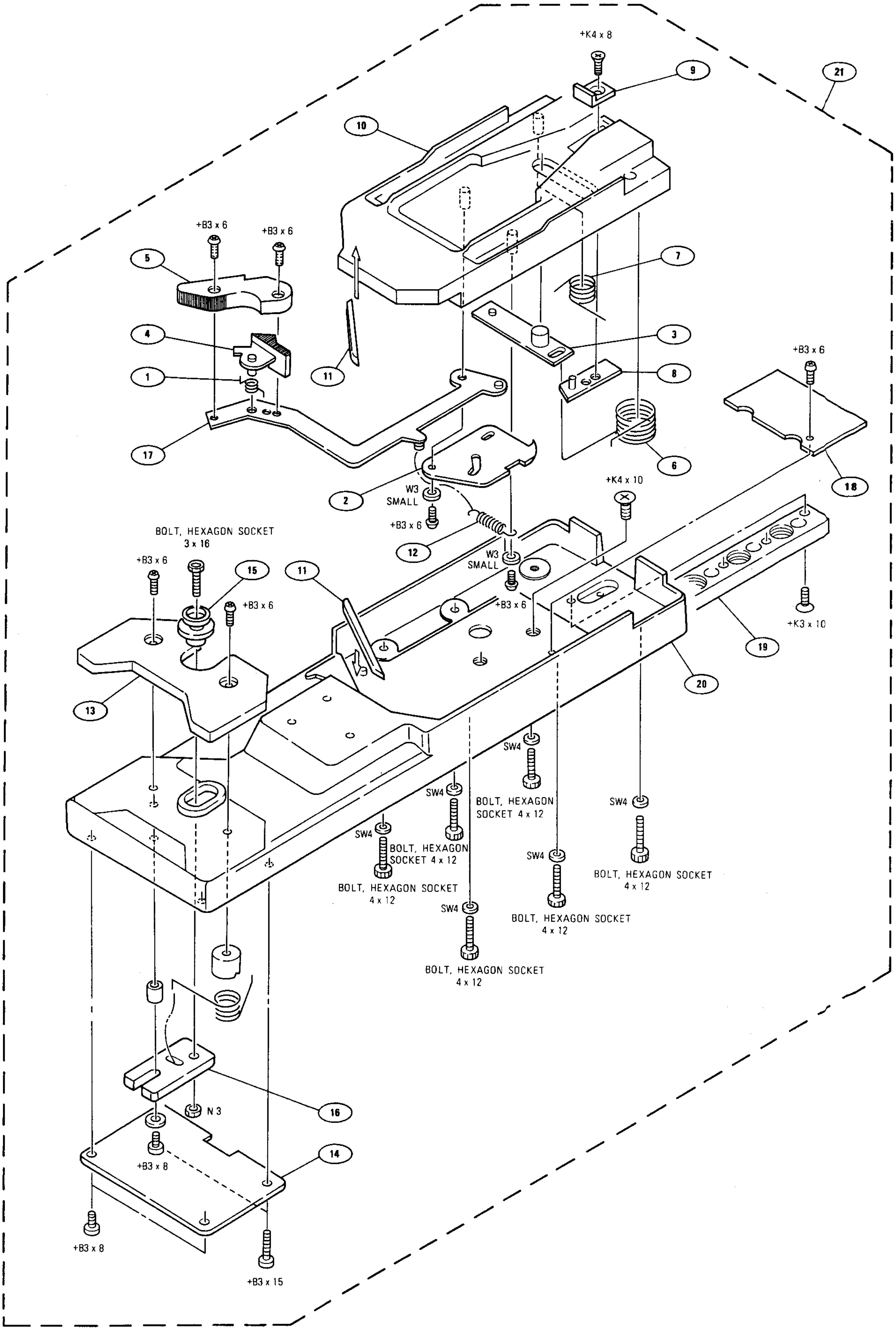
No.	Parts No.	SP	Description
1	A-7403-105-A	o	VF COMPLETE ASSY
2	A-7513-066-A	o	MOUNTED CIRCUIT BOARD "LP-28"
3	A-7513-402-A	o	MOUNTED CIRCUIT BOARD "VF-26"
4	A-7612-223-A	o	LENS ASSY, CONTACT
5	X-2536-706-3	s	WINDSCREEN ASSY
6	X-2536-707-1	s	FET ASSY
7	X-2536-708-1	o	CAPSULE ASSY
8	1-226-735-00	s	RES, VAR, CARBON 2K "CONTR"
9	1-226-736-00	s	RES, VAR, CARBON 250K "BRIGHT"
10	1-230-489-11	s	RES, VAR, CARBON 20K "AUDIO CONT"
11	1-451-208-21	s	DEFLECTION YOKE
12	1-464-168-22	s	MULTIPLIER
13	1-517-077-00	s	HOLDER, LAMP
14	1-518-337-00	s	LAMP, PILOT
15	1-546-043-11	s	CATHODE-RAY TUBE (40LB4)
16	1-554-922-11	s	SWITCH, TOGGLE "TALLY/ZEBRA"
17	1-554-924-11	s	SWITCH, TOGGLE "AUDIO/FILTER"
18	1-558-609-12	s	CABLE SET, ROUND TYPE (M)
19	1-612-778-11	o	PRINTED CIRCUIT BOARD "SW-80"
20	1-618-182-11	o	PRINTED CIRCUIT BOARD "CN-127"
21	1-934-936-21	s	HARNESS (CRT)
22	2-277-457-00	s	KNOB, STOPPER
23	3-005-073-00	s	BUSHING
24	3-302-492-00	s	SPRING, COMPRESSION
25	3-657-627-00	s	KNOB (2)
26	3-657-627-11	s	KNOB (2)
27	3-657-771-02	s	EYECAP (2)
28	3-657-841-11	s	SPACER (2x4)
29	3-672-201-00	o	MIRROR
30	3-672-241-00	o	RING (B), SLEEVE
31	3-672-244-00	o	SPACER, MULTI
32	3-672-247-00	o	RING (A), SLEEVE
33	3-672-250-00	s	RING (M2.6), O
34	3-672-253-11	s	RUBBER, CONDUCTIVE
35	3-672-287-00	o	HOLDER, MIRROR
36	3-672-293-15	o	VF (MAIN)
37	3-672-294-02	o	TUBE, VF
38	3-673-055-01	s	CUSHION, STOPPER
39	3-676-244-00	s	COVER, SWITCH
40	3-678-659-00	o	ROLLER
41	3-678-660-00	o	SUPPORT (A), LENS
42	3-678-661-00	o	HOLDER (B), LENS
43	3-678-662-00	o	TUBE, SLEEVE
44	3-678-663-00	o	GUIDE, ROLLER
45	3-678-664-00	o	HOLDER, EYECAP
46	3-678-667-02	o	RING, DIOPTER
47	3-678-669-00	o	HOLDER, DIOPTER RING
48	3-680-413-00	o	SEAL, RING HOLDER
49	3-680-414-00	o	SEAL, VF TUBE
50	3-680-416-00	o	RING, FIXED
51	3-680-417-00	s	LUPE (B), VF
52	3-680-418-01	s	RING, O
53	3-680-590-01	o	NAME PLATE (B) (CONTROL)
54	3-680-591-01	o	SUPPORT (D) (CRT)
55	3-680-592-01	o	BRACKET (A) (VF)
56	3-680-594-01	o	CLAMP, CRT
57	3-680-595-01	o	SUPPORT, ROTARY
58	3-680-598-01	o	PLATE, DISPLAY
59	3-680-599-03	o	SUPPORT (C) (CRT)
60	3-685-101-02	s	COVER (VF)
61	3-685-104-01	s	NUT (M6), CONTROL
62	3-685-116-01	o	INSULATOR, VF
63	3-685-118-01	o	SPACER, RING
64	3-685-119-01	o	RING (N), HOLD
65	3-685-129-01	o	SPRING (N), LEAF, VF
66	3-701-438-11	s	WASHER, 2.5
67	3-710-005-01	o	SEAL
68	3-710-006-01	o	BRACKET, AD
69	3-710-007-02	s	GUIDE, VF SLIDE
70	3-710-008-01	s	HOUSING, STOPPER
71	3-710-009-01	o	NAME PLATE (A)
72	3-710-036-01	o	GUARD, SW
73	3-710-099-02	o	STOPPER
74	3-711-701-01	o	SPACER
75	3-711-713-01	o	BRACKET
76	3-711-769-01	o	BRACKET, CN PC BOARD
77	3-711-773-02	o	PLATE, SHIELD, MICROPHONE
78	3-713-129-01	s	PACKING, RING
79	3-720-927-01	s	RETAINER (J :Ser.No. 10051 and higher) (UC:Ser.No. 10099 and higher) (EK:Ser.No. 10051 and higher)
80	3-720-928-01	s	NUT, PLATE (J :Ser.No. 10051 and higher) (UC:Ser.No. 10099 and higher) (EK:Ser.No. 10001 and higher)
81	8-814-221-00	s	MICROPHONE, CONDENSER C-2011
82	9-911-840-xx	s	RUBBER (B)

8-3. TRIPOD ADAPTOR

[VCT-14]

No.	Parts No.	SP	Description
1	2-381-631-01	o	SPRING
2	2-381-632-01	o	ARM, LOCKER
3	2-381-633-01	o	SOLENOID
4	2-381-635-01	o	LEVER, LOCK
5	2-381-636-01	o	KNOB
6	2-381-637-01	o	SPRING
7	2-381-638-01	o	SPRING
8	2-381-640-01	o	DOG
9	2-381-641-01	o	COLLAR
10	2-381-642-01	o	MOUNT
11	2-381-648-01	o	INSULATOR, KNOB
12	2-381-652-01	o	SPRING, TENSION
13	3-678-704-00	o	SPACER
14	3-720-906-01	o	LID (S), REAR
15	3-720-907-01	o	PIN (S), REAR
16	3-720-908-01	o	TABLE (S), PIN, REAR
17	3-720-909-02	o	KNOB, CRANK
18	3-720-910-02	o	SHEET, SLIDE
19	3-720-911-01	o	BASE, TRIPOD FITTING SCREW
20	3-720-912-01	o	FRAME (S)
21	OPTIONAL ACCESSARY: TRIPOD ADAPTOR "VCT-14"		

TRIPOD ADAPTOR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21
10
+B3 x 6
+B3 x 6
5
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4
3
+B3 x 6
1
11
8
17
6
18
2
W3
SMALL
+K4 x 10
+B3 x 6
BOLT, HEXAGON SOCKET
3 x 16
12
+B3 x 6
W3
SMALL
15
11
+B3 x 6
+B3 x 6
+K3 x 10
19
20
13
SW4
SW4
BOLT, HEXAGON
SOCKET 4 x 12
SW4
SW4
BOLT, HEXAGON
SOCKET 4 x 12
SW4
BOLT, HEXAGON SOCKET
4 x 12
BOLT, HEXAGON SOCKET
4 x 12
SW4
BOLT, HEXAGON SOCKET
4 x 12
BOLT, HEXAGON SOCKET
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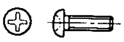
+B3 x 8
+B3 x 15

8-4. SCREWS

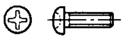
+B
Bzn-N



7-621-□□□-□□

SIZE	Parts No.
2 x 3	772-00
x 4	772-10
x 5	772-20
x 6	772-30
x 8	772-40
x 10	772-50
x 12	772-60
x 14	772-70
x 16	772-80
x 20	–
2.6 x 3	775-00
x 4	775-10
x 5	775-20
x 6	773-95
x 8	775-40
x 10	775-50
x 12	775-60
x 14	775-70
x 16	775-80
x 20	775-90

+B
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 3	544-09
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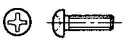
x 5	546-09
x 6	547-09
x 8	548-09
x 10	549-09
x 12	550-09
x 14	551-09
x 16	552-09
x 20	553-09
x 30	555-09
4 x 4	558-09
x 5	559-09
x 6	560-09
x 8	561-09
x 10	562-09
x 12	563-09
x 14	564-09
x 16	565-09
x 20	566-09
5 x 8	574-09
x 10	575-09
x 12	576-09
x 14	577-09
x 16	578-09
x 20	579-09

+B
Cr-N



7-682-□□□-□□

SIZE	Parts No.
3 x 3	544-04
x 4	545-04
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x 6	547-04
x 8	548-04
x 10	549-04
x 12	550-04
x 14	551-04
x 16	552-04
x 20	553-04
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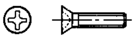
x 5	559-04
x 6	560-04
x 8	561-04
x 10	562-04
x 12	563-04
x 14	564-04
x 16	565-04
x 20	566-04
5 x 8	574-04
x 10	575-04
x 12	576-04
x 14	577-04
x 16	578-04
x 20	579-04

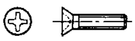
+K
Bzn-N



7-621-□□□-□□

SIZE	Parts No.
2 x 3	555-10
x 4	591-00
x 5	555-30
x 6	555-40
x 8	555-50
x 10	555-60
x 12	555-70
x 14	–
x 16	–
x 20	–
2.6 x 4	559-20
x 5	559-30
x 6	592-00
x 8	592-10
x 10	592-20
x 12	592-30
x 14	559-00
x 16	560-00
x 20	560-20

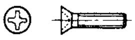
+K
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 4	245-09
x 5	246-09
x 6	247-09
x 8	248-09
x 10	249-09
x 12	250-09
x 14	251-09
x 16	252-09
x 20	253-09
4 x 6	260-09
x 8	261-09
x 10	262-09
x 12	263-09
x 14	264-09
x 16	265-09
x 20	266-09

+K
Cr-N



7-682-□□□-□□

SIZE	Parts No.
3 x 4	245-04
x 5	246-04
x 6	247-04
x 8	248-04
x 10	249-04
x 12	250-04
x 14	251-04
x 16	252-04
x 20	253-04
4 x 6	260-04
x 8	261-04
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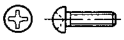
x 20	266-04

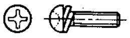
+P
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
3 x 3	144-09
x 4	145-09
x 5	146-09
x 6	147-09
x 8	148-09
x 10	149-09
x 12	150-09
x 14	151-09
4 x 4	158-09
x 5	159-09
x 6	160-09
x 8	161-09
x 10	162-09
x 12	163-09
x 14	164-09
x 16	165-09
x 20	166-09

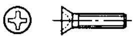
+PS
Bzn-N



7-682-□□□-□□

SIZE	Parts No.
2 x 4	253-00
x 5	253-10
x 6	253-20
x 8	253-30
x 10	253-40
x 12	253-50
2.6 x 4	253-90
x 5	254-00
x 6	254-10
x 8	254-20
x 10	254-30
x 12	254-40
x 14	254-90
x 16	254-50
x 20	254-60
3 x 5	646-09
x 6	647-09
x 8	648-09
x 10	649-09
x 12	650-09
x 14	651-09
x 16	652-09
x 20	–
4 x 6	–
x 8	–
x 10	–
x 12	–
x 14	–
x 16	–
x 20	–

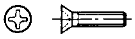
PRECISION +K
Bzn-N



7-627-□□□-□□

SIZE	Parts No.
1.7 x 1.8	–
x 2	450-28
x 2.2	–
x 2.5	450-48
x 2.8	–
x 3	450-58
x 3.5	–
x 4	450-78
x 4.5	–
x 5	450-98
x 5.5	–
x 6	–
2 x 2	452-08
x 2.2	452-88
x 2.5	452-48
x 2.8	–
x 3	452-18
x 3.5	452-98
x 4	452-28
x 4.5	–
x 5	452-38
x 5.5	–
x 6	452-58
x 7	452-68
x 8	452-78
2.6 x 3.5	–
x 4	–
x 4.5	454-28
x 5	454-38
x 5.5	–
x 6	–
x 7	–
x 8	–

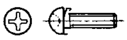
PRECISION +K
Cr-N



7-627-□□□-□□

SIZE	Parts No.
1.7 x 1.8	–
x 2	–
x 2.2	–
x 2.5	–
x 2.8	–
x 3	–
x 3.5	–
x 4	–
x 4.5	–
x 5	–
x 5.5	–
x 6	–
2 x 2	452-07
x 2.2	452-87
x 2.5	–
x 2.8	–
x 3	452-17
x 3.5	–
x 4	452-27
x 4.5	–
x 5	–
x 5.5	–
x 6	–
x 7	452-67
x 8	–
2.6 x 3.5	–
x 4	454-17
x 4.5	–
x 5	454-37
x 5.5	–
x 6	–
x 7	–
x 8	–

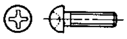
PRECISION +P
Bzn-N



7-627-□□□-□□

SIZE	Parts No.
1.7 x 1.6	552-18
x 1.8	–
x 2	552-28
x 2.2	–
x 2.5	552-08
x 2.8	–
x 3	552-38
x 3.5	552-78
x 4	552-48
x 4.5	–
x 5	552-58
x 5.5	–
x 6	–
2 x 1.8	554-38
x 2	553-18
x 2.2	–
x 2.5	553-28
x 2.8	554-58
x 3	553-38
x 3.5	554-18
x 4	553-48
x 4.5	553-58
x 5	554-28
x 5.5	–
x 6	553-68
x 7	553-88
x 8	553-98
x 10	553-78
2.6 x 2.8	556-08
x 3	–
x 3.5	556-28
x 4	556-38
x 4.5	556-48
x 5	556-58
x 5.5	–
x 6	556-78
x 7	–
x 8	–
x 9	–
x 10	–

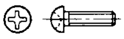
PRECISION +P
Cr-N



7-627-□□□-□□

SIZE	Parts No.
1.7 x 1.6	–
x 1.8	–
x 2	552-27
x 2.2	552-87
x 2.5	552-07
x 2.8	–
x 3	552-37
x 3.5	–
x 4	552-47
x 4.5	552-67
x 5	552-57
x 5.5	557-07
x 6	552-77
2 x 1.8	554-37
x 2	553-17
x 2.2	554-07
x 2.5	553-27
x 2.8	–
x 3	553-37
x 3.5	554-17
x 4	553-47
x 4.5	553-57
x 5	553-67
x 5.5	–
x 6	554-27
x 7	553-87
x 8	553-97
x 10	553-77
2.6 x 2.8	556-07
x 3	–
x 3.5	–
x 4	556-37
x 4.5	–
x 5	556-57
x 5.5	–
x 6	556-77
x 7	–
x 8	556-97
x 9	–
x 10	557-47

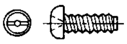
+P
Bzn-N



7-621-□□□-□□

SIZE	Parts No.
2 x 3	255-10
x 4	255-20
x 5	283-00
x 6	255-40
x 8	255-50
x 10	283-10
x 12	283-70
x 14	–
x 16	–
x 20	256-20
2.3 x 5	–
x 6	–
x 8	–
x 10	–
x 12	–
x 14	–
x 16	–
x 20	–
2.6 x 3	259-10
x 4	284-00
x 5	284-10
x 6	284-20
x 8	284-30
x 10	284-40
x 12	259-70
x 14	259-80
x 16	260-00
x 20	260-20

TOTSU P
BZn-N NON SLIT



7-685-□□□-□□

SIZE	Parts No.
2 x 4	102-19
2 x 5	103-19
2 x 6	104-19
2 x 8	105-19
2 x 10	106-19
2 x 12	107-19
2.6 x 4	131-19
2.6 x 5	132-19
2.6 x 6	133-19
2.6 x 8	134-19
2.6 x 10	135-19
2.6 x 12	136-19
2.6 x 14	137-19
2.6 x 16	138-19
3 x 5	144-19
3 x 6	145-19
3 x 8	146-19
3 x 10	147-19
3 x 12	148-19
3 x 14	149-19
3 x 16	150-19
3 x 18	
3 x 20	151-19
3 x 25	152-19
3 x 30	153-19
3 x 35	154-19
3 x 40	155-19
3 x 58	
4 x 6	158-19
4 x 8	159-19
4 x 10	160-19
4 x 12	161-19
4 x 14	162-19
4 x 16	163-19
4 x 20	164-19
4 x 25	165-19
4 x 30	166-19
4 x 35	167-19

Ref No.	Parts No.	SP	Description
L1	1-408-409-21	S	10μH
L2	1-408-406-21	S	5.6μH
L3	1-459-664-12	S	LINEARITY
L4	1-408-080-11	S	100μH
Q1	8-729-100-66	S	2SC1623
Q2	8-729-100-66	S	2SC1623
Q3	8-729-100-66	S	2SC1623
Q4	8-729-102-76	S	2SA812
Q5	8-729-102-76	S	2SA812
Q6	8-729-109-43	S	2SK94-X3
Q7	8-729-102-76	S	2SA812
Q8	8-729-800-32	S	2SC2362K
Q9	8-729-175-72	S	2SC2757-T33
Q10	8-729-800-32	S	2SC2362K
Q11	8-729-800-27	S	2SA1016K
Q12	8-729-100-66	S	2SC1623
Q13	8-729-301-87	S	2SD1083L
Q14	8-729-901-03	S	DTC144WK
Q15	8-729-901-03	S	DTC144WK
Q17	8-729-901-03	S	DTC144WK
Q18	8-729-901-03	S	DTC144WK
Q19	8-729-100-66	S	2SC1623
Q20	8-729-100-66	S	2SC1623
Q21	8-729-100-66	S	2SC1623
Q22	8-729-102-76	S	2SA812
Q23	8-729-102-76	S	2SA812
Q24	8-729-216-32	S	2SA1163
Q25	8-729-216-32	S	2SA1163
R33	1-215-487-11	S	METAL 560K 1% 1/6W
R44	1-214-466-11	S	METAL 2M 5% 1/4W
R45	1-214-467-11	S	METAL 3M 5% 1/4W
R85	1-215-490-11	S	METAL 750K 1% 1/6W
R86	1-215-490-11	S	METAL 750K 1% 1/6W
R97	1-215-493-11	S	METAL 1M 1% 1/6W
R98	1-247-775-11	S	CARBON 4.7 5% 1/4W
* RV1 ⚠	1-228-452-11	S	METAL 50
RV2	1-228-466-11	S	METAL 2M
RV3	1-228-466-11	S	METAL 2M
RV4	1-228-458-11	S	METAL 5K
RV5	1-228-458-11	S	METAL 5K
RV6	1-228-455-11	S	METAL 500
RV7	1-228-458-11	S	METAL 5K
RV8	1-228-454-11	S	METAL 200
RV9	1-228-464-11	S	METAL 500K
RV10	1-228-463-11	S	METAL 200K
RV11	1-228-461-11	S	METAL 50K
RV12	1-237-033-21	S	METAL 1K

Ref No.	Parts No.	SP	Description
S1	1-554-371-11	S	TACT
T1	1-446-106-12	S	HEATER PALS
* T2 ⚠	1-439-225-21	S	FLYBACK (VF)

VIEWFINDER FRAME

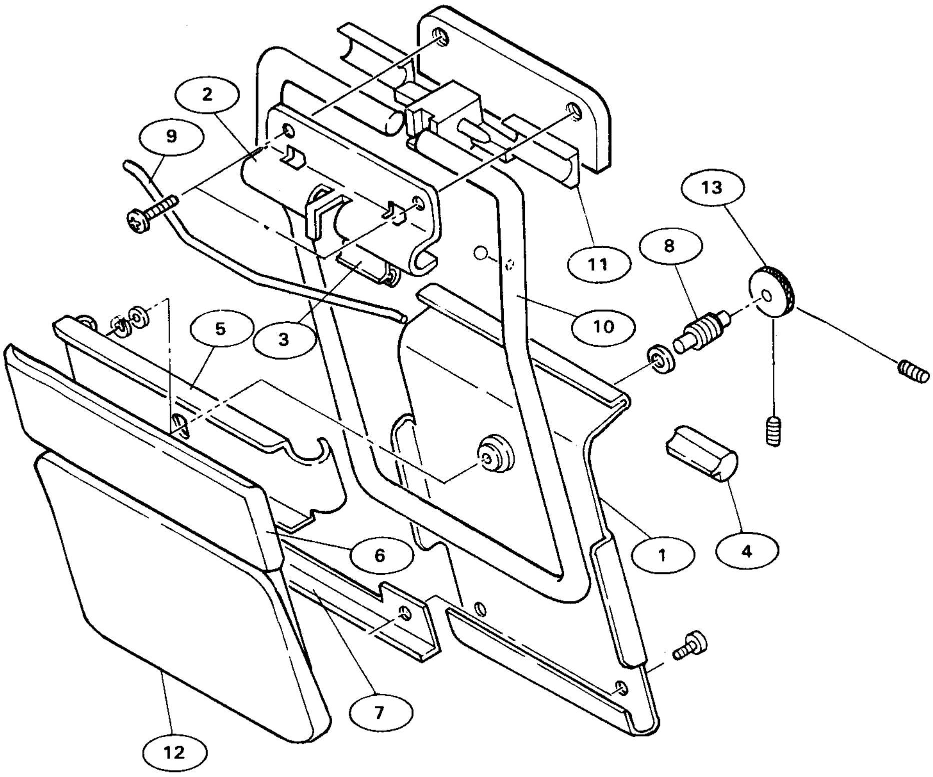
Ref No.	Parts No.	SP	Description
	1-451-208-21	S	DEFLECTION YOKE
⚠	1-464-168-22	S	MULTIPLIER
	1-546-043-11	S	PICTURE TUBE 1 1/2-INCH 40LB4
	1-558-609-12	S	CABLE SET, ROUND TYPE (M)
	1-934-936-21	S	CRT HARNESS
	1-937-304-12	O	VF MAIN HARNESS
	1-543-298-11	S	FERRITE BEAD
	1-939-242-11	O	VF EARTH HARNESS
	1-543-298-11	S	FERRITE BEAD
MIC1	8-814-221-00	S	MICROPHONE C-2011
PL101	1-518-337-00	S	LAMP, TALLY 12V 60mA
	1-517-077-00	S	HOLDER, LAMP
RV101	1-226-735-00	S	CARBON 2K
RV102	1-226-736-00	S	CARBON 250K
RV103	1-230-489-11	S	CARBON 20K
S102	1-554-924-11	S	TOGGLE "AUDIO/FILTER"

* These components are specified as **Safety Related Component** for **UC** only.

8-6. SUPPLIED ACCESSORIES

Parts No.	SP	Description
A-7401-157-A	S	PAD ASSY
A-7520-253-A	0	EXTENSION BOARD "EX-108"
X-3710-001-3	0	LID ASSY, UPPER
3-675-930-00	S	CAP (50-PIN SIDE), DUST
3-692-589-01	S	TOOL
3-711-766-01	S	COVER, MICROPHONE
3-711-780-01	S	COVER, RAIN
3-763-018-00	0	SCREW, BLIND
7-700-736-04	S	WRENCH, L-SHAPED HEX. (2.5mm)
7-721-140-60	S	WRENCH, L (3.0mm)

*** Exploded View for PAD ASSY** (A-7401-157-A)



No.	Parts No.	SP	Description
1	X-3678-615-2	0	SUPPORT ASSY, PAD
2	3-680-507-00	0	BRACKET (A), STAY
3	3-680-508-00	0	PAD (A), STOPPER
4	3-680-509-00	0	PAD (B), STOPPER
5	3-680-510-00	0	BRACKET, STAY
6	3-680-511-03	0	PAD (B)
7	3-680-512-00	0	CLAMP, STAY
8	3-680-515-00	0	SCREW, STAY ADJUST
9	3-680-517-00	0	SPRING
10	3-680-518-00	o	STAY, PAD
11	3-680-519-00	0	SUPPORT, STAY
12	3-680-520-03	0	PAD (A)
13	3-680-533-00	0	KNOB, ADJUSTMENT

BVP-50P (EK)
3-720-917-01

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Printed in Japan
1987.12 08